FINANCIAL TIMES

WEDNESDAY 30 NOVEMBER 2022 — INTERNATIONAL NEWSPAPER OF THE YEAR — EUROPE

Hungary at the heart of the battery bonanza
BIG READ, PAGE 15

Brexiters have made Britain more European
JANAN GANESH, PAGE 17

Taking aim
Nato backs up Nordic hopes

A Finnish soldier takes part in exercises in Nurmes yesterday. Finland and Sweden are in the midst of applications to join Nato, sparked by Moscow's invasion of Ukraine in February.

The western military alliance's foreign ministers reaffirmed the commitment to the Nordic countries' accession, as well as that of Ukraine itself, at their meeting in Bucharest yesterday.

"[Vladimir Putin] will get Finland and Sweden as Nato members soon," said secretary-general Jens Stoltenberg.

"Russia does not have a veto. We stand by that too on membership for Ukraine."

The alliance pledged support for Ukraine as Russia targets its infrastructure. "Putin is trying to use winter as a weapon of war," Stoltenberg said. "To force Ukrainians to freeze or flee."

Nato doubles down & Putin draft strains business page 3

Tomi Hanninen/EPA-EFE/Shutterstock

Briefing

▸ Beijing blames unrest on local officials' Covid control
Beijing has sought to distance itself from the crisis that sparked unprecedented protests.— PAGE 4; INSIDE BUSINESS, PAGE 6; MARKETS INSIGHT, PAGE 11; FT VIEW, PAGE 16

▸ HSBC sells Canada arm
The UK-based bank has agreed to sell the business to Royal Bank of Canada for $10bn, as it cuts its network amid pressure for a break-up.— PAGE 6; LEX, PAGE 18

▸ Eurozone bonds lifted
Inflation has shown a November decrease in Germany and Spain, prompting a rally in government bonds as investors bet that price growth had peaked.— PAGE 2

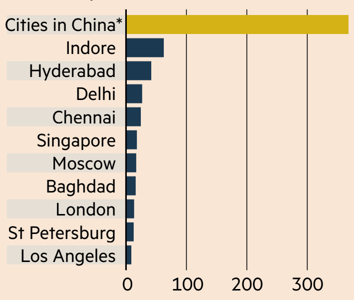
▸ Berlin deal for Qatar gas
Germany has signed a long-term supply agreement that marks a big step forward in efforts by Europe's biggest economy to wean itself off Russian gas.— PAGE 2

▸ Lai lawyer spat intensifies
The leader of Hong Kong has challenged the city's own court system to prevent Jimmy Lai, a pro-democracy tycoon, from hiring a British lawyer.— PAGE 4

▸ UK ruling on crypto theft
A London court has ordered exchanges including Binance and Coinbase to hand over customer details to a rival to help it track $10.7mn in stolen funds.— PAGE 6

Datawatch

People watching
Cameras per thousand, 2022



Source: Comparitech

The average Chinese city has six times as many CCTV cameras per 1,000 people as the most surveilled city outside China, the Indian city of Indore. Comparitech looked at 150 big cities, finding little correlation between surveillance and crime levels

China enlists Alibaba and Tencent in battle to overcome US chip sanctions

● Push for semiconductor self-reliance ● Aim to cut dependence on Arm ● Open source design the key

ANNA GROSS — LONDON
QIANER LIU — HONG KONG

China has enlisted tech giants Alibaba and Tencent to aid its efforts in designing semiconductor chips, as Beijing braces itself for further US-led sanctions aimed at suppressing Chinese computing power.

The Chinese government has set up a consortium of companies and research institutes, including the Chinese Academy of Sciences, to create chip intellectual property. Beijing wants to reduce its dependence on SoftBank-owned Arm, whose technology underpins the majority of semiconductors around the world.

The group is using Risc-V — pronounced "Risc-five" — an open-source chip design architecture created in 2010 by the University of California, Berkeley. Risc-V has emerged as a threat to Arm's business in recent years.

Open-source code can be produced, accessed, used and enhanced by anyone.

Beijing's interest in Risc-V has grown as Washington has increased the pressure on China's tech sector by limiting access to cutting-edge chip components and machinery.

The US has been lobbying allies including the Netherlands and Japan to cut Chinese tech companies out of their supply chains, as it did with the Huawei in 2019. That has led China to prepare for further disruption of the semiconductor supply chain.

> 'Under the escalating US export controls, we need to prepare for the worst'
> Chinese official

Arm, which is headquartered in the UK, is seen as vulnerable to any ramping-up of US sanctions targeting Beijing because it supplies its designs to Chinese tech companies.

One Chinese official said the government-led effort to pool resources on Risc-V-based chip design would put China on the "right track".

The official added that the fragmented nature of Risc-V's development — hundreds of different companies use its open-source software architecture — was slowing the replacement of Arm's designs.

"Under the escalating US export controls, we need to prepare for the worst," the official added.

The government-backed consortium, known as the Beijing Open Source Chip Research Institute, has developed "Xiangshan", a high-performance Risc-V computer-processing chip aimed at matching Arm's IP.

The idea behind Risc-V was sparked by other open standards and software that have revolutionised the digital world. It has gained traction in the west since 2020, when the proposed $66bn sale of Arm to US chipmaker Nvidia sent shockwaves through the semiconductor industry and pushed several companies to start looking more seriously at alternatives to Arm.

The deal later collapsed and SoftBank is now planning to list Arm in New York next year.

"Risc-V started out as a curiosity next to Arm, then it became an alternative and now it's a competitor," said Richard Wawrzyniak, an analyst at Semico Research.

Apple has moved some of its embedded cores, which power technologies such as WiFi and Bluetooth, from Arm processors to Risc-V, according to two people briefed on its plans. Apple has also advertised jobs for engineers familiar with Risc-V.

Ron Black, chief executive of Codasip, which develops chip designs using Risc-V, said his company had raised money to design high-end processors "because many of our customers tell us we need to have an alternative to Arm".

Arab nations unite behind Qatar in clash with west

Analysis ▸ PAGE 4

Ma finds refuge from Beijing scrutiny by painting and collecting art in Tokyo

KANA INAGAKI AND LEO LEWIS — TOKYO
RYAN MCMORROW — BEIJING
TOM MITCHELL — SINGAPORE

Jack Ma, the Alibaba founder and once the richest business leader in China, has been living in Tokyo for almost six months, amid Beijing's crackdown on the country's technology sector and its most powerful figures.

Ma's months-long stay in Japan with his family has included stints in hot spring and ski resorts in the countryside outside Tokyo and regular trips to the US and Israel, according to people with direct knowledge of his whereabouts.

Ma has largely disappeared from public view since he criticised Chinese regulators two years ago, accusing state banks of having a "pawnshop mentality" and calling for bold new players to extend credit to the collateral poor.

In that time, the companies he founded, Ant and ecommerce group Alibaba, have come under fire from Beijing. Regulators called off Ant's blockbuster $37bn initial public offering and fined Alibaba a record $2.8bn for antitrust abuses last year.

His absence from China has coincided with the stiffening of President Xi Jinping's zero-Covid controls this year. They led to a harsh lockdown of Shanghai and the surrounding Yangtze river delta in April and May and sparked nationwide protests over recent days. Ma has a home in Hangzhou, a city near Shanghai where Alibaba is based.

Ma has kept a low profile in Tokyo, bringing his personal chef and security with him, and keeping his public activities to a minimum, said the people with direct knowledge of his whereabouts.

His social activities centre on a handful of private members' clubs, one in the heart of Tokyo's swish Ginza district and another in the Marunouchi financial district facing the Imperial Palace.

People involved in Japan's modern art scene said Ma had become an enthusiastic collector. Friends close to the billionaire said he had turned to painting watercolours to pass the time after being forced to retreat from his frenetic business life. Others said Ma had used his time in Japan to expand his business interests beyond the core ecommerce technologies of Alibaba and Ant, and into the field of sustainability.

Ma's six months in Japan have coincided with a selldown by SoftBank of its shareholding in Alibaba after the Japanese technology group suffered a heavy hit from a global tech rout this year.

The Jack Ma Foundation and Ant did not respond to requests for comment.

Austria	€4.30	Morocco	Dh50
Bahrain	Din1.8	Netherlands	€4.30
Belgium	€4.30	Norway	NKr45
Croatia	Kn32/€4.25	Oman	OR1.60
Cyprus	€4.00	Pakistan	Rupee350
Czech Rep	Kc120	Poland	Zl 24
Denmark	DKr43	Portugal	€4.00
Egypt	E£59	Russia	€5.00
France	€4.30	Serbia	NewD530
Germany	€4.30	Slovenia	€4.00
Greece	€4.00	Spain	€4.00
Hungary	Ft1350	Switzerland	SFr6.50
India	Rup220	Tunisia	Din7.50
Italy	€4.00	Turkey	TL50
Luxembourg	€4.30	UAE	Dh23
Malta	€4.00		

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World Markets

STOCK MARKETS

	Nov 29	Prev	%chg
S&P 500	3950.54	3963.94	-0.34
Nasdaq Composite	10992.02	11049.50	-0.52
Dow Jones Ind	33756.78	33849.46	-0.27
FTSEurofirst 300	1728.34	1728.94	-0.03
Euro Stoxx 50	3933.23	3935.51	-0.06
FTSE 100	7512.00	7474.02	0.51
FTSE All-Share	4112.30	4098.49	0.34
CAC 40	6668.97	6665.20	0.06
Xetra Dax	14355.45	14383.36	-0.19
Nikkei	28027.84	28162.83	-0.48
Hang Seng	18204.68	17297.94	5.24
MSCI World $	2668.44	2703.67	-1.30
MSCI EM $	930.77	941.01	-1.09
MSCI ACWI $	617.15	625.15	-1.28
FT Wilshire 2500	5146.28	5229.12	-1.58
FT Wilshire 5000	40185.42	40835.91	-1.59

CURRENCIES

Pair	Nov 29	Prev	Pair	Nov 29	Prev
$/€	1.036	1.040	€/$	0.966	0.962
$/£	1.200	1.204	£/$	0.833	0.831
£/€	0.863	0.864	€/£	1.159	1.158
¥/$	138.325	138.795	¥/€	143.256	144.312
¥/£	165.991	167.088	£ index	79.243	79.517
SFr/€	0.985	0.983	SFr/£	1.142	1.138

CRYPTO

	Nov 29	Prev	%chg
Bitcoin ($)	16379.40	16204.75	1.08
Ethereum	1207.68	1167.08	3.48

COMMODITIES

	Nov 29	Prev	%chg
Oil WTI $	78.39	77.24	1.49
Oil Brent $	84.71	83.89	0.98
Gold $	1746.55	1751.85	-0.30

GOVERNMENT BONDS

Yield (%)	Nov 29	Prev	Chg
US 2 yr	4.48	4.43	0.05
US 10 yr	3.72	3.69	0.04
US 30 yr	3.76	3.74	0.02
UK 2 yr	3.27	3.35	-0.08
UK 10 yr	3.09	3.12	-0.03
UK 30 yr	3.35	3.36	-0.01
JPN 2 yr	-0.04	-0.02	-0.02
JPN 10 yr	0.25	0.25	0.00
JPN 30 yr	1.52	1.49	0.03
GER 2 yr	2.08	2.17	-0.09
GER 10 yr	1.92	1.99	-0.07
GER 30 yr	1.82	1.88	-0.07

Prices are latest for edition
Data provided by Morningstar

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INTERNATIONAL

Energy

Berlin signs long-term Qatar gas accord

Germany seals 15-year LNG contract as it replaces Russian supplies

SHOTARO TANI — LONDON
GUY CHAZAN — BERLIN

Qatar is to provide Germany with liquefied natural gas under a long-term supply deal that marks a big step forward in efforts by Europe's biggest economy to wean itself off Russian gas.

Under the two sales and purchase agreements signed yesterday by state-owned QatarEnergy and US group ConocoPhillips, about 2mn tonnes of LNG will be sent to Germany annually for at least 15 years, with deliveries expected to start from 2026.

The deals are the first long-term agreements for LNG supplies to an EU country since Russia's invasion of Ukraine in February. European countries have been wary of striking such deals despite seeking substitutes for Russian pipeline gas, as they attempt to move away from fossil fuels.

Robert Habeck, Germany's economy minister, welcomed the agreements. "Fifteen years is great," he said. "I wouldn't have anything against 20-year or even longer contracts."

Habeck said German utilities Uniper and RWE had been asked by the government to secure gas on the international market — including from Qatar — for an LNG terminal being built on Germany's North Sea coast.

But noting that the contracts were between energy groups and utilities rather than Berlin, Habeck warned: "The contracts themselves are the business of the companies . . . [they] have to realise that Germany will [in future] be purchasing less [gas] if we want to adhere to our climate goals." In this event, the companies "will have to deliver the volumes they have bought to other countries".

> 'Fifteen years is great. I wouldn't have anything against 20-year or even longer contracts'

The agreements would contribute to Germany's energy security "with a supply period that extends for at least 15 years", said Saad Sherida Al-Kaabi, Qatar's energy minister and chief executive of QatarEnergy.

Kaabi added that Qatar separated "politics from business", referring to an apparent protest by Germany's World Cup squad against Fifa's decision to ban players from wearing "One Love" armbands in support of the LGBT+ community against Japan last week.

Zongqiang Luo, senior analyst at Rystad Energy, said the latest deals were "a sign that Europe is beginning to tire of Russia's intermittent supply and is increasingly seeking long-term alternatives".

Russian gas accounted for about 45 per cent of EU gas imports last year. The bloc's need to find substitutes has intensified competition with Asia for cargoes, pushing up prices.

The price of LNG delivered to northwest Europe rose to almost $80 per million British thermal units in August, more than four times the price a year earlier, according to data provider Argus Media. However, prices have since fallen back to last year's level as Europe managed to fill its gas storage.

While 2mn tonnes of LNG accounts for about 3 per cent of Germany's annual gas demand, it will help fill the gap in a country that has been one of the worst hit as Russian president Vladimir Putin weaponised energy supplies.

Russian gas accounted for more than half of Germany's supplies before the invasion, and Berlin is striving to build new import infrastructure for LNG.

Eurozone

Inflation fall in Germany and Spain lifts hopes over rate rises

MARTIN ARNOLD — FRANKFURT
TOMMY STUBBINGTON — LONDON

Inflation in Germany and Spain fell in November, prompting a rally in eurozone government bonds as investors bet that price growth in the bloc had peaked and the European Central Bank would shift to smaller interest rate rises.

A slowdown in energy and services prices helped inflation in Germany to fall in line with expectations to 11.3 per cent in the year to November, down from a 71-year peak of 11.6 per cent in October, according to data from the country's federal statistical agency yesterday.

Annual inflation in Spain fell more than expected, from 7.5 per cent in October to 6.6 per cent in November, because of lower fuel and electricity prices, its national statistics agency said yesterday. Inflation dropped from 12.3 per cent to 10.6 per cent in Belgium.

But the data showed that price pressures in some parts of the economy remain high. In Spain, core inflation — a measure that excludes changes in energy and food prices — rose slightly to 6.3 per cent. Meanwhile, food prices rose in Germany at a faster pace of 21 per cent, and rental prices also accelerated slightly to 1.9 per cent.

Carsten Brzeski, head of macro research at ING Bank, said he was "still a bit cautious to call this peak inflation", saying there were still significant price pressures for companies to pass on to consumers that could lead to another increase in inflation before February.

But he said eurozone inflation was likely to fall for the first time in 17 months when November price data are published today, making it less likely that the ECB will raise rates by 0.75 percentage points for the third consecutive time when it meets in two weeks.

"With inflation no longer increasing, the arguments for another jumbo rate hike become weaker," he added.

ECB president Christine Lagarde said on Monday she "would be surprised" if eurozone inflation had peaked, telling legislators in Brussels that there was still more "pass-through" from high wholesale energy prices to consumer prices to come.

However, a sharp fall in European wholesale energy prices, combined with an easing of supply chain bottlenecks, has recently encouraged hopes that eurozone inflation is slowing. US inflation also fell in October and global data indicators suggest that this year's rampant global inflation has peaked.

"It's looking likely that we've seen the peak," commented Peter Schaffrik, chief European macro strategist at RBC, a bank, adding that even a slow decline in eurozone inflation should be sufficient to halt the sell-off that has swept through the region's bond markets this year.

"Recently the figures had kept on surprising to the upside," he pointed out.

"You just needed for things to stabilise and [now] yields look attractive from here," he added.

Futures markets now imply a peak for the ECB's deposit rate of just above 2.75 per cent in July next year, a decline of roughly 0.1 percentage points before yesterday's inflation data.

State visit. Diplomacy

Macron seeks greater US-EU collaboration

President to highlight Ukraine war's toll on bloc amid tension over Biden's green subsidies

LEILA ABBOUD — PARIS

Emmanuel Macron is to appeal to Joe Biden to take greater account of the damage done to Europe's economy by the war in Ukraine in his policy decisions, saying the EU and US need to collaborate more to manage the impact of the conflict and co-ordinate policies towards China.

According to the Élysée Palace, the French president will deliver the message when he is hosted from today by Biden on a three-day state visit — the first of Biden's presidency and Macron's second, having been invited by Donald Trump in 2018.

While the White House and the Elysée emphasised the close ties between the US and France and agreement on issues such as Ukraine, both sides say there are economic and geopolitical tensions brewing that will not be easy to resolve.

The war is exacting a heavier economic toll on Europe than the US due to spiralling energy prices caused by Russian export cuts, while EU officials say Biden's $369bn package of green subsidies threatens the bloc's industry.

Although Russia's invasion has forced the Biden administration to refocus on Europe, the US still sees countering China on economic competition and security as its main strategic priority.

Macron has criticised the green package, known as the Inflation Reduction Act (IRA), and voiced irritation at the US selling natural gas to Europe at inflated prices. Such behaviour "does not conform with World Trade Organization rules and it is not friendly", Macron said this month, promising to bring up both issues on his trip.

John Kirby, spokesperson for the US National Security Council, said on Monday the Biden administration would discuss France's worries about the legislation with Macron. "We want to understand the concerns," he said.

But on Macron's energy critique, US officials have rejected the idea they are profiting from liquefied natural gas exports. "The vast majority of US LNG is exported to Europe via transparent long-term contracts with foreign energy trading firms, including European companies," said an administration official.

Relations test: Joe Biden, left, with Emmanuel Macron in June, angered France last year after Paris was excluded from the Aukus security pact
Ludovic Marin/AFP/Getty

Macron has long pushed for Europe to pursue more "strategic autonomy" in its economic and security affairs and often warned of the risks of relying too much on the US.

"What we will tell the Americans is that in the current context, we need to be more robust together . . . and while we cannot have all the same policies on China, a resynchronisation is needed in our political agendas," said an Elysée official.

Gérard Araud, French ambassador to the US from 2014 to 2019, said it would be difficult for Macron to make much progress on the IRA or energy prices, but the visit would be an important diplomatic moment.

"A state visit is all pomp and circumstance, but it also signals how the US sees France as a key partner in Europe," he said. "With the UK no longer in the EU and Germany more focused internally, Macron is an important interlocutor for the Americans as they continue to support Ukraine while looking for ways to bring the war to an end."

> 'In the current context, we need to be more robust together'

On Macron's agenda are meetings at the White House, visits to the state department and Congress, and a traditional state dinner. Nuclear energy and space exploration will be highlighted as areas for deeper Franco-American cooperation. Macron will go to Nasa with Kamala Harris, US vice-president.

According to French and US officials, Macron and Biden will discuss how to manage the challenges ahead in Ukraine, including sending additional military and civilian aid and avoiding any escalation with Russia. Both countries have said only Kyiv can decide if and when to negotiate with Moscow and that Ukraine's sovereignty and territorial integrity must be respected.

Macron's efforts to keep a diplomatic channel open to Russian president Vladimir Putin are seen as helpful by Washington, according to one US official.

"The war in Ukraine has led the US to take more seriously the partnership between China and Russia, so they want to counter it with better alliances globally," said Maya Kandel, a specialist in US affairs at New Sorbonne University Paris 3. "The Biden administration wants Europe to be stronger, and France is a key part of that."

The meeting comes as the US steps up efforts to repair the relationship after France was left seething last year over its exclusion from the Aukus security pact, aimed at countering Chinese power in the Indo-Pacific region. Australia cancelled a big submarine order from France's Naval Group and opted instead for US-made vessels as part of the pact, which also includes the UK.

Macron accused the US of treachery and recalled the French ambassador. Biden admitted the US handling of the episode was "clumsy" at a joint meeting in Rome last October.

Nicole Bacharan, a political scientist at Sciences Po university, said the spat had left scars in Paris but the two allies had little choice but to reconcile, given the Ukraine conflict. "On the war, the US and France are fundamentally on the same line," she said.

Additional reporting by Aime Williams and Felicia Schwartz in Washington

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Public health

Plan unveiled to create jab within 100 days for next pandemic

CLIVE COOKSON — LONDON

A practical blueprint to develop a vaccine against a new virus within 100 days in less than a third of the time taken to produce Covid-19 vaccines in 2020, will be released today by an international organisation charged with protecting against pandemics.

The Coalition for Epidemic Preparedness Innovations had produced a plan which shows that "the 100-day mission is not just a slogan or a tool for fundraising" but a practical proposition, said Cepi chief executive Richard Hatchett. It was prepared through research and consultation with international health bodies, vaccine companies, scientists and regulators.

Cepi, a partnership between governments, charities and industry set up in 2017, aims to raise $3.5bn for a five-year programme to enable the world to supercharge the development and manufacturing of vaccines against an emerging virus with pandemic potential.

"We have pledges of $1.6bn-$1.7bn towards the $3.5bn and we have line of sight on maybe another $800mn to $1bn in potential commitments that have not yet been announced publicly," said Hatchett.

The target is to have a vaccine that has passed initial trials and been approved for emergency use within 100 days of a virus being recognised as a pandemic threat by scientists and its genetic sequence released. According to Cepi, the fastest comparable figure for Covid was 326 days between Chinese scientists publishing the Sars-Cov-2 viral genome in January 2020 and the UK Medicines and Healthcare products Regulatory Agency approving the BioNTech/Pfizer vaccine the following December.

As with Covid, initial development work might have to begin well before a disease outbreak is officially recognised as an international health emergency or pandemic, Hatchett said.

"Once a new pathogen has demonstrated some degree of human to human transmission and some evidence of severity, you have to make a value judgment and do some things at risk because you can't regain lost time," he said. "Those first investments are relatively small, several million dollars, and don't commit you to spending hundreds of millions on day one."

Cepi envisages five main areas of innovation that will be required: creating libraries of prototype vaccines for the virus families most likely to cause a pandemic; preparing clinical trial networks to be mobilised rapidly when needed; finding biological markers to give an early sign of immune response to a vaccine; establishing biomanufacturing facilities that can switch quickly to making a pandemic product; and tightening global disease surveillance.

Dame Kate Bingham, who led the UK Vaccine Taskforce in 2020, said the 100 days mission was "do-able but relies on very close international collaboration and leadership to prepare in advance for Disease X".

Richard Hatchett: 'Do some things at risk because you can't regain lost time'

"Comprehensive global surveillance will be essential to identify potential risks rapidly, together with continued investment in diagnostics, manufacturing and clinical development capability around the world," she added.

Last week, the World Health Organization launched a process to update its list of "priority pathogens" most likely to cause a pandemic. Around a dozen families of viruses are prime suspects.

"It would be extremely unlikely that we encounter a completely novel family of viruses, and the first pathogen to emerge from it has pandemic potential," said Hatchett. Although bacteria have caused bad epidemics, such as the plague, they are regarded as less of a pandemic threat than 21st century viruses.

It is also essential to build up experience with vaccine technology platforms, the Cepi plan said. Although mRNA was the fastest route to effective Covid vaccines, "there may be a reason why other approaches are better for different threats," Hatchett said, referring to the BioNTech/Pfizer and Moderna jabs.

INTERNATIONAL

Putin's sudden draft strains Russian business and threatens to stifle growth

Mass mobilisation aggravates labour shortages and accelerates trend of depopulation, warn experts

POLINA IVANOVA — MOSCOW
MAX SEDDON — RIGA
DARIA MOSOLOVA — LONDON

The morning after Vladimir Putin announced a mass mobilisation for Ukraine, men across Russia went to work to find notices ordering them to head to draft offices. By the evening, women were turning up at workplaces, searching for their husbands.

"We had to give them drinks to calm them down," an executive at a large metals and mining company recalled, describing desperate scenes on the factory floor. "You can understand them: their men left to go to work in the morning and did not come home."

Businesses in Russia have been shaken by the sudden draft that has mobilised at least 300,000 for the war in Ukraine since September 21 and triggered an exodus of hundreds of thousands more.

Interviews with oligarchs, business owners and employees show that although the number of conscripts and émigrés represents a fraction of Russia's 72mn workforce, the mobilisation has been disruptive to the economy and is likely to hit longer-term growth. The Financial Times chose not to disclose the names of executives and staffers interviewed because of possible reprisals from the authorities.

The mobilisation push has created the biggest labour shortage in Russia since 1993, according to a study this month by the Gaidar Institute think-tank. In the survey of business, most respondents said they would be unable to increase production to keep up with demand, while others said they expected production cuts and decline in output quality.

"Simply put, this will mean that we will have fewer healthy, educated and strong people, the ones who create a country's GDP [gross domestic product]," said Vladimir Gimpelson, a labour market economist who has left Moscow to work in the US. "If economic growth were the government's priority, I would call this a disastrous mistake."

Draft officers have handed out conscription notices at homes, at workplaces, in public places such as metro stations and at border crossings to catch those fleeing the country, and have been sent in the post. Ignoring the orders does not usually lead to severe repercussions but drastic measures have at times been used to meet regional quotas.

In one far-flung industrial area in Siberia, "they just grabbed whoever they could", said the chief executive of another commodities company.

Despite the disruption, the executive has decided not to lobby for an exemption for his workers as "it can backfire very easily. You ask for 10 people to be exempt and you get asked to list 30 people who can be mobilised in reserves."

In addition to 150 employees officially mobilised, several had quit their jobs pre-emptively, giving notice only once they had crossed the border into central Asia, he said.

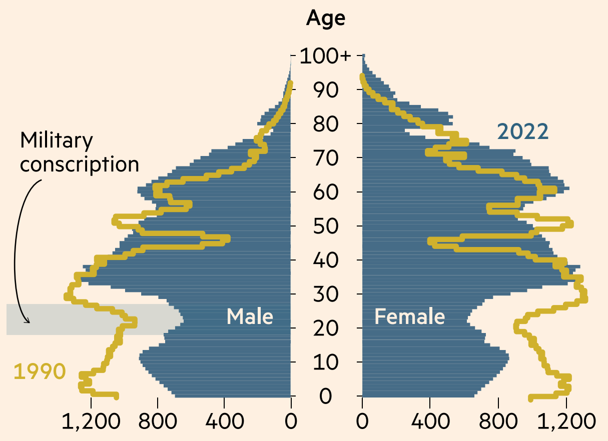
Although the number of departures amounted to a small share of the company's thousands-strong workforce, the drafted employees were difficult to replace in the sparsely populated, often remote wildernesses of Siberia. "Hiring women is option number one," the executive said, even for manual labour that had been reserved for men until a recent change in regulations.

Called up: Russian conscripts at a railway station in Sevastopol, Crimea, early this month on their way to fight in the war EPA-EFE

Many business representatives described how the role of press officers and human resources managers had transformed overnight: now they were asked to lobby draft offices to return conscripts. Some tried to negotiate with the army through trade bodies, others attempted to pressure draft offices using marketing techniques, including paying to plant stories about conscripted staffers in the local press.

Conscription and the brain drain are also worsening population decline. According to the border guards service, which is part of the FSB security agency, 9.7mn people left Russia from July to September, an increase of 1.2mn year on year and nearly double the total in the previous quarter. Demographers were already predicting a 25 per cent drop in the number of workers aged 20 to 40 by 2030, compared with the late 2010s, Gimpelson said. This age group is critical for productivity.

Russia's shrinking, ageing population
Population structure by age and sex, 1990 and 2022 ('000)



Source: US Census Bureau

Migrant workers from central Asia can fill vacancies for unskilled jobs but will be unable to replace high-skilled employees in IT, which was struggling with labour shortages before the mobilisation, said Oleg Itskhoki, a professor at the University of California, Los Angeles. Elvira Nabiullina, Russia's central bank governor, suggested as much last month when she said that the draft could lead to higher inflation "due to changes in the structure of the labour market and a shortage of some specialists".

Sofya Donets, an economist at Renaissance Capital, said: "We expect that the outflow of skilled labour will have a negative impact on long-term growth potential."

Executives at Yandex, Russia's largest tech company, lobbied for an exemption from the mobilisation for its staff but several were handed draft notices anyway, according to one Yandex staffer who was called up.

Most of them, including the staffer, managed to evade the draft. But such mistakes have prompted more to leave Russia than in the early weeks of the invasion, the staffer said. As such, about a quarter of Yandex's 20,000 workforce is now based outside Russia. The company declined to comment.

Large Russian companies have been able to cushion the blow more easily than smaller groups, said the billionaire founder of another Russian commodities company, which has lost more than 1,000 men from its 20,000-strong workforce. And for some sanctions-hit groups, mobilisation has also been an opportunity to make savings; firing people is politically difficult for larger Russian companies,

> 'We expect that the outflow of skilled labour will have a negative impact on long-term growth potential'

"It sounds wrong but mobilisation actually helped that process along," an executive said.

But the departures have also placed indirect strains on the workforce and the economy. There are more dependants, such as elderly family members, to look after per working-age person, according to Donets. The labour force has also grown poorer on average as those who could afford to emigrate were "clearly more well off to begin with", Itskhoki noted.

This means that a "large part of the people that created demand within the economy are no longer there", he said.

Many in business feel they have little choice but to adapt. Several, including some who said privately that they oppose the war, have at the same time argued that the draft would have been handled more efficiently had business been left to manage it.

Another oligarch in Moscow remarked he would have found volunteers for the army among his 10,000 staff in exchange for keeping three critical workers he fears he might lose.

"Tell business that for the protection of the country's sovereignty, 300,000 are needed," the billionaire said. "Do you think business would not have managed to find enough volunteers?"

Alliance membership

Nato restates 14-year-old pledge to take Ukraine under its wing

HENRY FOY — BUCHAREST

Nato has doubled down on a promise to make Ukraine a member of the western military alliance, while vowing to step up support to Kyiv and help rebuild its energy infrastructure destroyed by Russian attacks.

Accusing Russian president Vladimir Putin of aiming to "freeze Ukraine into submission" by targeting its power and heating networks as winter sets in, Nato committed to keep providing support to help Kyiv defend itself and rebuild civilian infrastructure.

Foreign ministers from the alliance who met in Bucharest, the Romanian capital where Nato leaders first pledged in 2008 that Ukraine and Georgia would eventually become members of the alliance, said yesterday they "firmly stand behind our commitment" to both countries despite Russia's aggression.

That initial 2008 declaration, despite not being accompanied by a formal admission procedure or any tangible progress, was cited by Moscow as one reason for its full-scale invasion of Ukraine in February. Putin has accused Nato of seeking to bring the former Soviet state into the alliance to station weapons there to threaten Russia.

Volodymyr Zelenskyy, Ukraine's president, has made membership of Nato — and the EU — cornerstones of his foreign policy.

The restatement of Nato's support came as Ukraine reels from weeks of sustained Russian missile and drone attacks targeting civilian infrastructure. The barrages have damaged Ukraine's power, water and heating networks, leaving swaths of the country without basic services as temperatures drop.

"President Putin is trying to use winter as a weapon of war," Nato secretary-general Jens Stoltenberg told reporters at the Bucharest meeting, "to force Ukrainians to freeze or flee."

The alliance's foreign ministers also agreed to "continue and further step up political and practical support to Ukraine as it continues to defend its sovereignty and territorial integrity and our shared values against Russian aggression, and will maintain our support for as long as necessary".

Nato's two-day Bucharest meeting marks an increased focus on long-term reconstruction goals rather than immediate solutions aimed at providing Ukraine with much-needed weaponry.

"I think in all of our systems, attention is starting to shift more and more to both immediate and medium-term reconstruction, not in terms of shifting away from the immediate and continuing military support," said an official involved in the talks. "It's as well as."

Dmytro Kuleba, Ukraine's foreign minister, who joined the Nato ministers for dinner yesterday, said Kyiv needed both air defence and power equipment.

Separately, the US said it would bilaterally provide Ukraine with more than $53mn to assist with repairing power infrastructure damaged by the Russian attacks, as Kyiv races against time to patch up the electricity network before winter reaches its coldest period. The money would pay for equipment such as transformers and circuit breakers, said US secretary of state Antony Blinken.

Pentagon

China forecast to extend nuclear arsenal to 1,500 warheads

DEMETRI SEVASTOPULO — WASHINGTON

China has developed 400 nuclear warheads and is on course to expand its arsenal to 1,500 weapons by the middle of the next decade as its continues a dramatic expansion of its nuclear forces, according to a Pentagon report.

The Pentagon said Beijing "probably accelerated" its nuclear expansion last year and was on track to have a stockpile of 1,500 nuclear weapons by 2035. That would give it almost as many warheads as the US and Russia have deployed under the limits of the New Start arms control agreement, although China would still lag behind the two powers in total number of weapons.

"The People's Liberation Army plans to basically complete modernisation of its national defence and armed forces by 2035. If China continues the pace of its nuclear expansion, it will probably field a stockpile of about 1,500 warheads by its 2035 timeline," the Pentagon said in its annual report to Congress on the Chinese military.

"Everything related to the Chinese nuclear expansion has been in some way surprising . . . They've moved at a pretty rapid pace," said a senior US defence official, adding the US also worried about its development of fast breeder reactors, which produce plutonium for possible use in nuclear arms.

The Pentagon projections come as Washington becomes increasingly concerned about the two other major nuclear-equipped nations. In its recently released national security strategy, the Biden administration said that by the 2030s the US "for the first time will need to deter two major nuclear powers".

Washington believes China under President Xi Jinping is moving away from its decades-long policy of having a "lean and effective" nuclear arsenal, meaning a limited number of nuclear weapons that China believes are necessary to respond to any nuclear attack on its territory. But US officials say China has shown no willingness to engage in any talks about nuclear weapons.

The Pentagon said that although China has a policy of "no first use" for nuclear weapons — meaning it would only use them if it came under nuclear attack — it believed there were situations in which Beijing might abandon that policy. These include "consideration of a nuclear strike in response to a non-nuclear attack threatening the viability of China's nuclear forces or C2 [command and control]".

A second senior defence official said Beijing was likely to be expanding its arsenal because of a range of factors, including its view that the US was trying to contain China, but also owing to tensions with other countries. "They're also thinking probably about India when they take into account the requirements for their nuclear force," he said.

> 'Everything related to the Chinese nuclear expansion has been in some way surprising'

Underscoring the rapid expansion, the Pentagon said the PLA last year launched about 135 ballistic missiles for testing and training, more than the rest of the world combined, excluding launches in conflict zones.

The report also confirmed that China in 2021 conducted a highly advanced test of a hypersonic weapon, which was first reported by the Financial Times. It said the "hypersonic glide vehicle" flew 40,000km around the world for more than 100 minutes, marking the greatest distance and time flown by a Chinese land-attack weapon.

The report comes as tensions mount over Taiwan, particularly after China conducted large-scale military drills to protest against the visit to Taipei in August by US House Speaker Nancy Pelosi. The Pentagon said that even before that visit, China had in 2021 conducted increasingly frequent and realistic "island-seizure" exercises.

The Pentagon said China was also investing heavily in space, from intelligence assets to weapons to counter an adversary in space, such as kinetic-kill missiles and ground-based lasers. It said China had more than 260 ISR (intelligence, surveillance and reconnaissance) satellite systems, which marked an almost doubling since 2018.

"The PLA owns and operates about half of the world's ISR systems," the Pentagon said in the report. "These improvements increase China's monitoring capabilities, including observation of US aircraft carriers."

The Pentagon said China was developing electronic warfare capabilities, in addition to offensive cyber space capabilities and directed-energy weapons.

Arms control

US accuses Moscow of stalling New Start Treaty negotiations

FELICIA SCHWARTZ — WASHINGTON

Russia has postponed nuclear weapons talks that were due to begin yesterday, US officials said, marking a setback for the last remaining arms treaty between the powers and providing further evidence of fraying diplomatic ties since the invasion of Ukraine.

The US National Security Council said: "We haven't received a real solid answer from the Russians as to why they postponed this. We'd like to see it get back on the schedule as soon as possible."

The Russian foreign ministry told the Tass news agency the talks would be rescheduled but offered no other details. US officials said they were working to ascertain why Moscow had postponed the discussions.

The meeting would have been the first of its kind since the beginning of the Covid-19 pandemic. Since its implementation in 2011, the New Start Treaty has limited the strategic nuclear weapons arsenals held by Moscow and Washington and allowed the parties to conduct on-site inspections to verify that those limits are being adhered to. It is set to expire in 2026.

Over the summer, Russian officials had said they would not allow the inspections to resume, citing US sanctions relating to Russia's war in Ukraine, which, they said, would make travelling for the checks difficult.

But US officials had hoped this week's meeting would have allowed them to discuss restarting the inspections.

A state department official said Russia made the decision to scrap the talks "unilaterally", and added that Washington hoped to return soon to the technical talks on implementing the treaty.

"The United States is ready to reschedule at the earliest possible date as resuming inspections is a priority for sustaining the treaty as an instrument of stability," the official said.

US and European officials have made efforts to avoid nuclear escalation as Russia's full-scale invasion of Ukraine rumbles on. Washington is particularly concerned that Russia may try to use a tactical or battlefield nuclear weapon, a category not included in the treaty.

INTERNATIONAL

Pandemic protests

China blames local officials over outbreaks

Beijing vows to lift elderly jabs rate and reaffirms zero-Covid approach

EDWARD WHITE — SEOUL
ELEANOR OLCOTT AND HUDSON LOCKETT — HONG KONG
THOMAS HALE — SHANGHAI

China's health authorities yesterday blamed local governments for their handling of coronavirus outbreaks as Beijing distanced itself from the crisis after unprecedented protests against President Xi Jinping and his zero-Covid policy.

The National Health Commission reaffirmed Beijing's commitment to zero-Covid measures and pledged to boost vaccination rates among the elderly, a day after police and security forces appeared to have stamped out demonstrations across at least 18 cities.

Without acknowledging the protests directly, Chinese officials argued that public complaints centred on the implementation of China's strict prevention and control measures — the responsibility of local governments — rather than Beijing's zero-Covid policy itself.

They added that local officials should focus on minimising inconveniences to the public. "Some local governments take a one size fits all approach, and take excessive policy steps that have neglected the demands of the public," said commission spokesperson Mi Feng, adding that lockdown extensions had at times been "reckless" and enforced far beyond the necessary timeframes.

Experts said China's huge numbers of unvaccinated elderly were holding back a change to the zero-Covid strategy, which includes lockdowns, mass testing, quarantines and electronic contact tracing. "Some places are facing the most complicated and severe situation in the three years since the fight against the epidemic," Xia Gang, of the Bureau of Disease Prevention and Control, said.

Chinese state media have not reported on the recent protests, instead reiterating the benefits of Beijing's zero-Covid policy. The People's Daily, the main state-sponsored newspaper, ran a rallying editorial celebrating the Communist party.

Ernan Cui, an analyst with research group Gavekal, said while the central

> 'Some places are facing the most severe situation in the three years since the fight against the epidemic'

government was "still rhetorically committed" to the zero-Covid policy "the reality is that local governments are no longer able to make it work.

The fact that Beijing refrained from even more drastic coronavirus controls, despite record case numbers, was seen as a positive signal by some analysts.

Zhiwei Zhang, Beijing-based chief economist at Pinpoint Asset Management, said he felt "more optimistic", pointing to the elderly vaccination drive and state media efforts to play down the severity of the Omicron variant.

According to the latest official statistics, 32 per cent of China's 267mn people over the age of 60 have not received their third vaccine dose. That figure jumps to 60 per cent for the over-80s.

The NHC vowed to increase pressure on elderly Chinese but stopped short of any vaccine mandates. In markets, traders bid up shares on hopes that Beijing would ease some of its pandemic controls, following a sell-off at the start of the week that led global markets lower.

Online censors have also been scrubbing images and videos of the protests. Students at campuses across China held white sheets of paper during the weekend's demonstrations, a symbol of their inability to express dissatisfaction with government policies. Chinese television channels also limited close-ups of maskless football fans during broadcasts of the World Cup in Qatar after an online backlash from domestic viewers questioning China's Covid policy.

Officials in several cities appeared to ease some local-level restrictions of movement on Monday, but Shanghai yesterday imposed a new round of closures on some businesses and quarantines of close coronavirus contacts.

China's caseload remains low by almost all international comparisons, yet areas with at least partial lockdowns and travel restrictions account for more than 25 per cent of China's gross domestic product, according to an analysis by Nomura, the Japanese bank. That exceeds the peak of about 21 per cent in April, when Shanghai was locked down.

The country of 1.4bn people reported 37,477 new locally transmitted cases of the virus yesterday, down from the record 38,808 reported the day before.

Additional reporting by William Langley and Cheng Leng in Hong Kong, and Nian Liu and Ryan McMorrow in Beijing

See The FT View, Inside Business and Markets Insight

Security law

Hong Kong challenges own court with appeal to Beijing

PRIMROSE RIORDAN AND CHAN HO-HIM
HONG KONG

Hong Kong is challenging its own court system to prevent a pro-democracy tycoon from hiring a British lawyer, just as the city attempts to rehabilitate its reputation as Asia's premier financial hub.

After the Chinese territory's highest court rejected the government's latest bid to bar Jimmy Lai from hiring Timothy Owen to defend him, the city's leader said he had asked Beijing to step in to interpret a sweeping 2020 national security law for the first time.

If China's top legislative body, the Standing Committee of the National People's Congress, reverses the decision, foreign lawyers could be prevented from representing defendants in cases involving the security law, imposed to quash pro-democracy protests.

Hong Kong has mounted a campaign to lure investors back to the city after strict Covid-19 controls and political crackdowns sparked an exodus of residents. As part of the charm offensive, which included staging the Rugby Sevens tournament after a three-year hiatus, officials have repeatedly insisted to global business leaders that its legal system is free of government interference.

"The timing of this is terrible. The Hong Kong government is calling itself an open society with rule of law on the one hand, and then it tries to dismiss a

> 'It goes against the grain of what the HK government preaches about the city's unique qualities'

high court ruling by going straight to Beijing," said Tara Joseph, from the Committee for Freedom in Hong Kong Foundation and former head of the American Chamber of Commerce in the city. "It goes exactly against the grain of what the Hong Kong government preaches about the city's unique qualities. Hong Kong has always said it was open to international barristers and judges. This just flies in the face of that ideal it espoused."

Beijing's liaison office, China's top body overseeing Hong Kong affairs, lambasted Monday's ruling by the Court of Final Appeal. It said allowing overseas lawyers to be involved in cases would be "against the intention" of the national security law.

Lai was charged with foreign collusion over his role as owner of the defunct pro-democracy Apple Daily newspaper, which was targeted by authorities for its defiant coverage of the 2019 protests. He has pleaded not guilty.

"There are also no means to ensure that [an overseas lawyer] has not been coerced, compromised or in any way controlled by foreign governments, associations or persons," said John Lee, Hong Kong's chief executive.

Lee added that Beijing would rule on whether overseas lawyers, whom he described as "not qualified to practise generally in Hong Kong", could be involved in national security cases.

Hong Kong has a common law system in which foreign lawyers and judges hold positions. Overseas judges also visit Hong Kong to sit on the Court of Final Appeal, although Lord Robert Reed, president of the UK Supreme Court, and Lord Patrick Hodge, who also sits on the UK's top court, resigned this year. The Hong Kong government has asked the court to postpone Lai's trial, which was set to begin tomorrow.

World Cup. Backlash

Arab states find rare source of unity in Qatar

Giant-killing matches and anger at western hectoring have fostered solidarity

FT REPORTERS

The opening week of the Qatar World Cup was overshadowed by political controversy and gestures of support for human rights.

But what in the Gulf has been seen as western hectoring has turned the football tournament into a rare thing in the Arab world: a source of regional unity.

"It feels nice to see an Arab country host," said Mohammed, a government employee in the Saudi Arabian capital, Riyadh, after watching his country's shock victory over Argentina. "I am proud, for sure."

Arabs have backed gas-rich Qatar's handling of the World Cup, highlighting what they regard as western hypocrisy for criticising the conservative state's lack of democracy, limits on alcohol and ban on homosexuality, while asking Doha for more natural gas to replace Russian supplies and having failed to scrutinise the previous tournament in Russia as aggressively.

"We don't have as much sexual and political freedom as you do, don't claim to be democratic, but we are stable, prosperous monarchies [that] organise world-class events, compete with the best and have the best of everything — so eat your heart out neocolonialists, orientalists and western hypocrites," Dubai-based political science professor Abdulkhaleq Abdulla wrote on Twitter.

Despite Qatar's poor showing on the pitch — the team failed to qualify from the group stage after losing all three games — Saudi Arabia's win over Argentina and Morocco's victory over Belgium have given Arabs their own giant-killing teams to support.

"A lot of the Arab solidarity has come as a result of the Saudi victory over Argentina — it sent a message to all that Arabs can win," said Mohammed Alyahya, a senior fellow at the Hudson Institute. "Saudi is a new team, reflecting the 180-degree change in the country, with this new excellence that Saudis want to present."

Fans on the streets of Doha have also expressed support for Palestinians by refusing to be interviewed by Israeli journalists and social media influencers. Qatar, unlike some of its neighbours, has not normalised relations with Israel but, to accommodate Fifa rules, it has allowed aircraft to transport Israeli media and fans to the tournament.

Difficult encounters between Israeli journalists and Arab and other supporters have gone viral on social media. One Egyptian fan interjected "Viva Palestine" into a live interview.

Such encounters underscore the contrast between the elites in countries such as Morocco and the United Arab Emirates, which have normalised relations with Israel, and an enduring commitment to Palestinian freedom across the Arab world.

Schisms within the Gulf, by contrast, are receding thanks to a regional buy-in to Qatar 2022.

Less than two years ago, the Gulf states were locked in a three-year Saudi-led embargo against Qatar over charges it fostered Islamist extremism. Saudi Arabia, the UAE and Bahrain demanded the closure of Doha-based media network Al Jazeera and told Qatar to cut ties with their regional nemesis, Iran.

Since the AlUla Accords of January 2021, which formally ended the embargo, Qatar has repaired ties with its neighbours, though relations with Bahrain remain strained and Abu Dhabi has been reluctant to normalise ties fully. Sheikh Tamim bin Hamad al-Thani, Qatar's emir, watched the opening fixture of the tournament with Mohammed bin Salman, Saudi crown prince.

Among many, disdain for Doha's politics during the boycott has been replaced by enthusiastic backing during the World Cup. "These silly pressures [over human rights] managed to do the impossible — they united the region on something," said a Dubai businessman.

"When we go to the west, we respect their customs and their laws," said Mohamed Karam, a real estate agent in Cairo. "And they too should respect our customs and our laws."

For years, more liberal Gulf societies such as Dubai have adopted a "don't ask, don't tell" approach to homosexuality. But officials fear this delicate balance could be jeopardised if the World Cup-related focus on LGBT+ issues triggers a wider conservative backlash.

Reactions against the perceived imposition of progressive ideals of sexual tolerance have played out live in Qatar, where Welsh football fans trying to enter stadiums wearing rainbow bucket hats had their pro-LGBT+ symbols removed by Qatari security guards.

The firm approach of the guards has been acclaimed on social media, where the most senior Islamic cleric in Oman referred to rainbow flags as "emblems of the most monstrous vice".

After German players covered their mouths in their team photo in protest at Fifa's ban on multicoloured arm bands, many mocked their ensuing defeat in their opening game.

But in Lebanon, which is suffering from political and financial crises, watching the games has proved harder. Its cash-strapped government was unable to secure the rights to broadcast the games on national television, so fans have had to buy expensive cable subscriptions or pay to watch in cafés. Many resort to illegal streaming.

"While our politicians take private jets to Qatar, our government has even tried to take football away from us," said Haidar, 27, who has screened games at his electronics shop in Beirut.

Reporting by Simeon Kerr in Dubai, Heba Saleh in Cairo, Samer Al-Atrush in Riyadh and Raya Jalabi in Beirut

Morocco fans cheer the win over Belgium. Inset, Saudi Arabia's Abdulellah al-Malki
Moahamed Messara/EPA-EFE

Fatalities

Official says 400-500 tournament migrant workers died

The Qatari official in charge of delivering the 2022 World Cup has said that about 400 people died during the construction work associated with preparations for the tournament, a far higher figure than previously given.

In a TV interview, Hassan Al-Thawadi said the estimate was "between 400 and 500, I don't have the exact number. That's something that's being discussed."

The Supreme Committee, the Qatari entity organising the World Cup, later issued a statement reiterating the previous figure of three work-related deaths. It added that the estimate of 400 was for "all work-related fatalities nationwide in Qatar" in the years 2014-20.

Amnesty International said "thousands of workers" had been returned home in coffins, without explanation. *Josh Noble*

Middle East

Iran Revolutionary Guard attacks Kurdish opposition groups across border in Iraq

RAYA JALABI — BEIRUT
NAJMEH BOZORGMEHR — TEHRAN

For decades, Iranian Kurdish opposition groups have found relative safety in neighbouring Iraq, where they set up bases and agitated for greater freedoms at home. Some even fought alongside US-backed Iraqi Kurdish security forces against Isis militants.

But in recent weeks, their strongholds have come under a barrage of fire from Tehran, which has launched dozens of drones and ballistic missiles across the border into Iraq's Kurdistan region.

Iran accuses the Iraq-based Iranian Kurds of supporting the anti-government protests that have engulfed the country since mid-September, spurred by the death of 22-year-old Iranian Kurd Mahsa Amini, killed in the custody of Iran's morality police.

"We're being used as a scapegoat," said Khalil Nadri, for the Kurdistan Freedom party (PAK), one of a handful of armed Iranian Kurdish opposition groups in Iraq that have been targeted.

Nadri, speaking from an undisclosed site in Iraq's border mountains, said at least 19 PAK members had been killed since the attacks on their bases began in late September. The UN refugee agency said Iranian refugees, including women and children, were among the casualties in the strikes.

Since the protests erupted in Iran, at least 305 have been killed there, including at least 41 children, said Amnesty International; 42 of those were killed in the past week alone as protests gained pace in Kurdish-majority western cities such as Mahabad and Javanrud.

Ethnic Kurds live across Turkey, Syria, Iran and Iraq, but lack their own state. Iranian Kurdish dissident groups, which have been engaged in a low-intensity conflict with the regime in Tehran over their desire for greater autonomy since the 1979 revolution, moved their bases to Iraq in the 1980s and 1990s.

Iran alleges that these groups have been smuggling weapons across the border and stirring up protests.

The escalating tensions now threaten to overwhelm Iraq's semi-autonomous Kurdistan Regional Government, which has called for international intervention to stop the attacks and has complex ties with Baghdad and Iranian Kurds. "These attacks have to be stopped. Civilians are dying and our economy is taking a serious hit," a KRG official said.

The KRG has for years allowed the Iranian Kurds to operate in Iraqi Kurdistan, while also maintaining a working relationship with Tehran and its allies in Baghdad. Decades of integration mean ties run deep; many Iraqi Kurds fled to Iran when Saddam Hussein attacked them in the 1990s.

Although the KRG gained self-rule in the 1990s, it depends on the federal government in Baghdad for its budget and security needs and must balance its Kurdish solidarity with a need to pacify Baghdad, itself under Iranian pressure.

Direct hit: a Kurdistan Democratic Party of Iran office is struck in Koye

The fledgling Iraqi government of premier Mohammed Shia' al-Sudani is buttressed by parties and militia groups close to Tehran. Sudani has condemned recent attacks on the Kurds by Tehran as a "violation of Iraqi sovereignty" and has urged its neighbours not to use Iraq as an arena "to settle scores". But Iran has said the country's Revolutionary Guard will launch more air attacks if the dissident groups are not disarmed.

In a meeting in Baghdad last week with Sudani and other government officials, Esmail Ghaani, who heads the Quds Force, the guard wing responsible for its overseas operations, threatened a ground invasion should Baghdad fail to disarm the groups and fortify its borders, three Iraqi and Kurdish officials confirmed. An official in Baghdad said the threat "has to be taken seriously".

Iran foreign minister Hossein Amirabdollahian said the Islamic republic had agreed with Iraqi officials "to disarm" the groups, but until its implementation "our armed forces will continue their acts to provide maximum security for the country". Baghdad and KRG officials denied an agreement had been reached.

The regional government has pinned its hopes on Sudani's government. In Baghdad yesterday, KRG regional president Nechirvan Barzani discussed the cross-border attacks with Sudani, which the official said was "a good first step".

In northern Iraq, PAK members were braced for fresh strikes. Drones were seen circling overhead while smoke still billowed from the earlier strikes.

Additional reporting by Nechirvan Mando

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A WORLD OF ENCHANTMENT
Amidst the freshly fallen snow, a glistening OMEGA wonder is revealed. The Speedmaster Moonwatch in stainless steel sits at the heart of our festive dreamscape, where iconic heritage and mechanical precision are seamlessly brought to life. Even in these frozen seconds of time, there is a forward momentum that celebrates OMEGA's endless pursuit of excellence. This Co-Axial Master Chronometer watch, with its legendary design and history of space exploration, is the perfect choice for a magical winter full of discovery and imagination.
Ω
OMEGA

China rally Investors are counting on protests over zero Covid prompting Xi to accelerate reopening of the economy ➔ MARKETS

Companies & Markets

HSBC agrees sale of Canada operation to RBC for $10bn

- Lender scales back global network
- Move follows exits in US and France

STEPHEN MORRIS AND SARAH PROVAN
LONDON

HSBC has agreed to sell its Canadian business to Royal Bank of Canada for $10bn, as it scales back its global network outside Asia amid pressure from its largest investor to break up.

Shares in HSBC rose almost 5 per cent on the news of the deal, with the bank saying that it may return some proceeds to investors. The deal hands RBC 130 branches and more than 780,000 retail and commercial customers. The deal, if approved by regulators, would bolster the position of RBC, which is already Canada's largest lender by assets.

"Following a thorough review of the business, which assessed its relative position within the Canadian market and its strategic fit within the HSBC portfolio, [we] concluded that there was a material value upside from selling the business," said HSBC chief executive Noel Quinn. "The deal makes strategic sense for both parties."

> 'Shareholder repatriation may serve to appease investors frustrated that dividends were curtailed'

Quinn and chair Mark Tucker are facing sustained pressure from HSBC's largest shareholder, Chinese insurer Ping An, to split its Asian and western operations. Ping An has been critical of years of poor performance, high costs and a flagging share price, arguing that the bank can no longer operate effectively straddling east and west in an era of tense US-China geopolitics.

The Canada sale follows similar exits of lossmaking consumer operations in France and the US. HSBC took a $3bn hit when it sold its French retail network to Cerberus for €1 last year.

The transaction is expected to be completed in late 2023 and the board plans to "proactively" consider how much surplus capital created through this transaction will be returned to investors via a one-off dividend, share buybacks or a combination of the two.

"This transaction is a clear positive for HSBC," said Jefferies analyst Joseph Dickerson.

"The company will recycle the related gains back to shareholders. The related shareholder repatriation may serve to appease those investors still frustrated that dividends were curtailed in early 2020."

During the early phase of the Covid-19 pandemic, regulators in the UK and EU banned banks from paying dividends in order to conserve capital.

This infuriated HSBC's Asian shareholders — from small individual holders to Ping An itself — which had come to rely on the regular payments for income.

The London-based bank, which has its headquarters in the UK but makes about two-thirds of its profits in Asia, has since restored a dividend, but at a much lower level.

RBC's acquisition of the business, which was the sixth-biggest bank in the country with assets of C$134bn ($98bn) — marks the first big domestic deal in Canada in a decade.

RBC chief executive Dave McKay said that the transaction "positions us as the bank of choice for commercial clients with international needs, newcomers to Canada and affluent clients who need global banking and wealth management capabilities".

Because of competition concerns in Canada's highly concentrated banking market, most lenders have preferred expansion in the US.

Last year, BNP Paribas agreed to sell its San Francisco-based Bank of the West to Bank of Montreal for $16.3bn.

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Out of tune UK regulator says boom in music streaming has not depressed artists' earnings

Artists such as Nadine Shah say they do not earn a fair wage, despite millions of streams — Duncan Bryceland/Shutterstock

KATE BEIOLEY — LONDON

The UK competition regulator has ruled out action to help artists earn more money in the music-streaming market despite claims that the system is depriving them of a fair wage.

The Competition and Markets Authority found that record labels and streaming services were unlikely to be making excess profits that could be shared with artists. It concluded that streaming had led to more competition for listeners and musicians.

CMA interim chief executive Sarah Cardell said: "We heard from many artists and songwriters . . . about how they struggle to make a decent living from these services. These are understandable concerns but our findings show that these are not the result of ineffective competition — and intervention by the CMA would not release more money into the system that would help artists or songwriters."

The streaming boom enlivened the music industry, which was in a 20-year decline, and streaming now accounts for about three-quarters of UK recorded music revenues. But artists such as Mercury Prize-nominated Nadine Shah have said they are not earning enough to survive, despite generating millions of streams.

The watchdog launched its market study in January to look at whether big record labels or streaming services such as Spotify held "excessive power". The probe followed a report by MPs on the Department for Digital, Culture, Media and Sport select committee that highlighted a broken model that failed to reward musicians fairly. The MPs called on the CMA to look into the power wielded by the three biggest music companies — Universal Music, Sony Music and Warner Music — that control more than two-thirds of the recorded music market.

In its report, the regulator acknowledged that streaming had boosted the operating margins of the big record labels. It said that while the money from streaming was shared more widely than before, more than 60 per cent of streams were recorded by the top 0.4 per cent of artists, who tended to be signed to the big labels.

Artists could earn about £12,000 from 12mn streams in the UK last year, but less than 1 per cent of artists achieved that popularity.

But the CMA concluded that artists' concerns could not be blamed on high levels of concentration. Musicians had more avenues than before to share their music with listeners. And royalty rates on average had increased — from 19.7 per cent in 2012 to 23.3 per cent last year.

The Musicians' Union said that "creators and performers need the market to operate differently or they simply won't be able to sustain careers in music".

Crypto group given green light to track stolen assets

KATE BEIOLEY, SIDDHARTH VENKATARAMAKRISHNAN AND JOSHUA OLIVER — LONDON

A London court has ordered cryptocurrency exchanges including Binance, Coinbase, Kraken and Luno to hand over customer details to a rival operator to help it track $10.7mn in stolen funds.

In a ruling yesterday, the High Court ordered six exchanges, all based outside the UK, to disclose customer data including names, bank accounts and card details, subject to some redactions.

The judge said "steps should be taken before the scent goes colder" to trace $1.7mn of the money that was tracked to 26 accounts, all of which were owned or operated by one of the six exchanges. The funds were in digital currencies including Bitcoin, Ripple, Tether and Ethereum. The action brought by the UK-based exchange is one of the first applications of new court rules designed to help victims of cyber fraud track their assets overseas. The name of the exchange was not disclosed to avoid "tipping off" the thieves, the ruling said.

The UK exchange asked the court to intervene after it was hacked in 2020. It had initially sought help from UK law enforcement, but when that proved fruitless the group hired crypto-tracing experts. They tracked $1.7mn to accounts owned or operated by one of the six exchanges, lawyers for the UK exchange told the court.

Courts and law enforcement authorities are racing to catch up with the sharp rise in crypto fraud. In the UK, data from police unit Action Fraud showed that the total value of reported crypto frauds increased by a third in the 12 months to September 2022. Last year, criminals stole about $6.2bn, according to blockchain research group Chainalysis, up 80 per cent from 2020.

Lawyer Syed Rahman, who represented the UK exchange, said: "The case is a huge step forward for those who are trying to recover assets that have been taken fraudulently and moved across borders."

The ruling concluded that it would be "impractical and contrary to the interests of justice to require a victim of fraud to make speculative applications in different jurisdictions" in order to track down their assets.

Binance declined to comment. Kraken, Luno and Coinbase did not immediately respond.

Diversifying production away from China will be far from easy

INSIDE BUSINESS
ASIA
June Yoon

The showdown at the world's biggest iPhone factory in China has just become relevant to the world's shoppers. Waiting times for Apple's premium smartphone models in the US have reached a record, of as many as 37 days — meaning deliveries may not be made before Christmas, according to Counterpoint Research. Although seemingly trivial, the delays are a telling sign of the problems in global manufacturing supply chains.

Apple's main assembly plant in the city of Zhengzhou, which makes nearly three-quarters of the world's iPhones, including the latest 14 Pro models, is struggling with worker unrest and Covid-19 lockdowns. It is far from an isolated case. Across the country, China is dealing with one of the most significant bouts of protests in decades and a record number of new Covid-19 cases.

From here, there are two ways for Beijing to react. Authorities could stamp out further social unrest and stick to lockdowns. Or, there may be a gradual move towards loosening restrictions to appease growing discontent. The more likely scenario is the latter, with analysts expecting China to now reopen its economy fully from lockdown restrictions earlier than the previously expected second quarter of 2023.

Yet either way, the economic damage is done. Even if China drops its zero-Covid policy earlier than forecast, the problem then becomes its relatively low vaccination rate. Due to strict isolation policies over the past two years, the number of cumulative cases — and natural immunity — is extremely low at 0.01 per cent of the population, increasing the risk of an infection surge after reopening.

Nearly one-third of China's population is employed in manufacturing. A sudden rise in Covid-19 cases would have a direct impact on supply chains, worsening a serious worker shortage.

The current looser, and shorter, restrictions are already estimated to affect more than a fifth of China's total output. An escalation of lockdowns to more cities for longer periods would cause a lasting and significant impact on the global economy. Two months of restrictions this year in just one city, Shanghai, upended global supply chains for many months.

> A sudden rise in Covid-19 cases would have a direct impact on supply chains, worsening a serious worker shortage

Manufacturing dependence on China is huge. It tops global output market share for three-quarters of the world's manufacturing categories tracked by the UN, from apparel, pharmaceuticals, chemicals, computers, and electrical and industrial equipment. It also controls more than 80 per cent of refining and mining of raw materials for key industries such as electric car batteries. The risks are underlined by the fact that Guangzhou — the country's manufacturing hub — is the epicentre of the latest surge of cases.

So it is no surprise that for years, diversification away from China has been offered up as a solution to supply-chain disruptions. But how easy will that be, even if the will is there? Just a decade ago, when China was lower down in the manufacturing value chain and the importance of its consumers for global companies more limited, this may have been more of an option.

Now, much of the manufacturing ecosystem, from components suppliers to engineering solutions, are set up near the manufacturing hubs in China. This cuts costs and makes faster changes and launches possible. But it makes moving manufacturing to other countries much more complicated.

There are also not that many plausible alternatives to China. South-east Asian options in manufacturing mostly lack at least one of two factors that made China into the "world's factory": scale and low labour costs. Vietnam, which has a labour force less than a tenth that of China, lacks scale. Thailand's labour costs are higher. India's manufacturing output is one-tenth of China.

Extra labour and logistics costs from diversification would also go against the business model of many of China's manufacturers, which relies on razor-thin margins. The iPhone maker Foxconn's was below 2.5 per cent last year, while peer Pegatron's were 1.3 per cent.

More critically, China has become the largest consumer market outside the US for an increasing number of industries and companies. For groups from Tesla and Apple to Samsung, moving production closer to the market helps curry favour with Beijing to overcome barriers to foreign business.

Disruptions look set to last far beyond Christmas. Many companies are already too entrenched to make significant changes to operations. Political risk and supply shocks should now be planned for as a cost of doing business.

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Travel & leisure

Juventus chair Agnelli and board resign

La Liga calls for sanctions amid scrutiny of salary and transfer accounting

SAMUEL AGINI AND OLIVER RALPH
LONDON

Juventus has been plunged into crisis after the entire board and the chair of the football club quit amid an investigation into its finances.

Exor, the holding group through which Italy's Agnelli family controls Juventus, said yesterday it would appoint Gianluca Ferrero, a corporate adviser and auditor, chair, replacing Andrea Agnelli. The Juventus board, including vice-chair and ex-player Pavel Nedvěd, stepped down on Monday evening, "having considered the centrality and relevance of pending legal and accounting issues", the club said.

The accounting of players' salaries and transfers has been under scrutiny from prosecutors and Italy's regulator since last year. The club denies wrongdoing.

The news has rippled through European football, with La Liga yesterday calling for authorities to impose sporting sanctions on Juventus. The Spanish league has previously complained to Uefa and alleged that Juventus had breached regulations. La Liga did not call for a specific punishment, but sanctions typically refer to points deductions or bans from competitions.

The departing board "considered [it] to be in the best social interest to recommend that Juventus equip itself with a new board of directors to address these issues".

Juventus said on Monday it planned to share new financial statements for the 2021-22 season. The club had "obtained new legal and accounting opinions from the independent experts . . . to assess the issues raised by [regulator] Consob".

Exor said Ferrero had "the required technical competencies, as well as a genuine passion for the *bianconero* club".

Juventus, which backed the European Super League, has suffered a fall from grace on and off the pitch. AC Milan won Serie A last season and Juventus has recorded hundreds of millions of euros of losses since the pandemic hit. Shares in the club are down more than 40 per cent in the past year. UK fund manager Lindsell Train is the biggest shareholder apart from majority owner Exor.

After probes by the public prosecutor's office in Turin and Consob, Juventus has had to change the way it has accounted for player payments for the financial years ending June 2020 and June 2021. Players had agreed to waive part of their salaries because of Covid and later agreed "loyalty" bonuses.

Juventus said that Consob had determined that the club had failed to provide "adequate evidence" to show the "reasonableness" of the fair value ascribed to players in certain transfers with other clubs.

Juventus recorded a net loss of €254mn in the 2021-22 season, bringing losses in the three seasons affected by Covid to more than €550mn. Last year the group raised €400mn from shareholders.

Juventus has failed to add to its tally of 36 titles since 2020. Having finished fourth last season, it is third this year, 10 points off league leaders Napoli.

Agnelli was one of the architects of the European Super League, a competition that would have guaranteed places to a select group of clubs in the region.

Juventus shares closed down just under 1 per cent in Milan yesterday.
See Lex

Technology. China curbs

Dutch chip gear maker feels heat from US

Biden is raising pressure on Europe and Japan to fall in line, says ASM International

ANNA GROSS — BARCELONA
DEMETRI SEVASTOPULO — WASHINGTON

The head of Europe's second-largest semiconductor equipment maker has warned that the US is turning up the heat on its allies to ensure key global chip companies fall in line behind Washington's tough export controls on China.

Benjamin Loh, chief executive of Dutch-listed ASM International, which develops equipment for the production of semiconductor wafers and chips, said the US was "putting a lot of pressure . . . to make sure that the Dutch government and the Japanese government follow as well".

He added: "The US government is hoping that this is going to be a multilateral thing going forward because they need to stop everybody [selling high-end tools to China]."

Loh's comments come as Alan Estevez, the top US commerce department official for export controls, and Tarun Chhabra, the White House National Security Council official who drove the process to impose unilateral controls on October 7, prepare to hold talks with Dutch officials in the Netherlands this week.

President Joe Biden's administration has been trying to reach a trilateral deal with its allies for well over a year, as part of its strategy to make it much harder for China to develop advanced semiconductors needed for military purposes, but failed to secure an agreement in time.

ASMI is one of two major chip toolmakers in Europe, alongside Dutch group ASML, which is Europe's largest and most important company in the chip sector.

This month, ASMI issued the most severe estimate of the hit from the US export controls of any major European chip company, warning it would affect about 40 per cent of sales to China, which has grown to account for 16 per cent of group revenue.

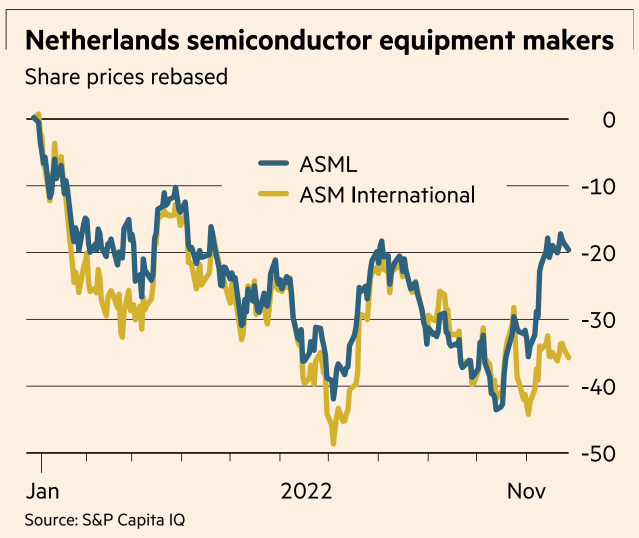
"China is not a small amount of our business but at the same time it's not something that will kill us," Loh said, noting that ASMI's "sizeable operation" in Arizona in the US made it more exposed to Washington's sanctions.

The toolmaker, which receives more than half of its revenues from sales of equipment for advanced chips, is still assessing whether the cautious estimate is accurate, Loh said, but "in hindsight it is, maybe, not such a bad thing — being very conservative — because I think we have not seen the end of this yet".

Tougher going: the US is attempting to cut resources to China's smart chip makers STR/AFP via Getty Images

Loh said its Chinese customers were "struggling now, trying to get all the different pieces" they needed to build their planned manufacturing lines.

Even if they were ultimately able to buy more equipment than anticipated from ASMI, Loh added, the lack of access to crucial US resources would make it "very difficult for Chinese advanced fabs to continue going forward".



The US export controls, which bar American companies from exporting critical chip manufacturing tools to China and prevent "US persons" from providing the country with direct or indirect support, have immediately hurt the three biggest US chip toolmaking companies: Applied Materials, Lam Research and KLA.

But they have had much less impact on the other two non-US companies that dominate the global market — Tokyo Electron in Japan and ASML.

Estevez last month said US companies wanted "fairness", which in the case of toolmakers meant "multilateral" export controls. "We intend to give them that as well so that it's fair with their competition across the globe," he added.

In recent comments, Estevez said he was confident the three countries would strike a deal in "the near term", but many industry experts say that timeline is overly optimistic given the concern in Tokyo and, particularly, The Hague.

> The lack of access to crucial US resources would make it 'very difficult for Chinese advanced fabs to continue'

Underscoring the less optimistic view, Dutch foreign trade minister Liesje Schreinemacher has in recent days suggested the US faces a difficult battle.

Speaking to the Dutch parliament last week, Schreinemacher said the Netherlands had to "defend our own interests", which she said included economic interests.

In an interview with a Dutch newspaper this month, Schreinemacher said the Netherlands would look at the chip market with "a more critical eye" but warned it would not just "copy the American measures one-to-one".

Her comments marked the first time the Dutch government has even indirectly referred to the negotiations it has been holding with the US and Japan.

One person familiar with the US talks with the Dutch and the Japanese said the Biden administration was committed to securing a trilateral agreement between the countries.

"We've obviously seen the [recent] comments from the Dutch. I would just say that there are also private conversations going on," said the person.

Additional reporting by Javier Espinoza in Brussels and Manuela Saragosa in London

Food producers

Nestlé chief acknowledges miscues over acquisitions

JUDITH EVANS

Nestlé has acknowledged two acquisition missteps, beginning a review of a peanut allergy medication purchased for $2.6bn two years ago and spinning out a meal kits business in a rare admission of misjudgments by chief executive Mark Schneider.

The largest food manufacturer said it would "explore strategic options" for Palforzia, a peanut allergy treatment that Nestlé acquired with the purchase of Aimmune Therapeutics in 2020.

The review follows "slower than expected adoption by patients and healthcare professionals" of the treatment, which is made with small amounts of peanut powder, Nestlé said. It could result in a sale or partnership.

The acquisition of Aimmune extended Nestlé's reach into healthcare, which is Schneider's background: he joined the group from German healthcare company Fresenius.

Nestlé has also agreed to spin out Freshly, a meal kits business acquired in 2020 in a deal valuing the start-up at $950mn. It was bought as Covid-19-era restrictions fuelled rapid growth in sales of meal kits, which has now faltered.

Freshly will be merged with Kettle Cuisine, a premium food manufacturer owned by private equity group L Catterton, leaving Nestlé a minority stake.

Nestlé did not disclose the financial terms of the deal but said Freshly "has not driven the scale or performance we had hoped for" after "dramatic shifts in the external business environment".

> A meal kits business will be spun out while options are to be explored for a peanut allergy treatment

Nestlé disclosed the Palforzia review and Freshly merger as it held an investor seminar in Barcelona but said it had made a net annual return on acquisitions since 2018 of between 11 and 13 per cent, "with a large majority of transactions at or above their business plans".

Schneider has become a well-regarded leader in the consumer goods industry since he took over as chief executive of Nestlé in 2017 and began a shift of about a fifth of its portfolio into high-growth areas.

Nestlé's stock suffered a 2 per cent decline yesterday.

This came despite the company, which makes brands including Kit Kats, Nescafé and Milo, upgrading its sales guidance for the year, saying it now expected like-for-like net sales growth of 8 to 8.5 per cent, up from 8 per cent projected in October.

Schneider told investors the outcome of the Palforzia acquisition was "very vexing to me" after "we were drop dead certain there was an unmet medical need — it was as close to a sure thing as we could get . . . but we had to accept the reality that it is a niche product".

Nestlé's health science division will now focus on consumer products and medical nutrition rather than expanding into pharmaceuticals.

Greg Behar, who heads the company's health science business, said it expected to bear a significant impairment relating to Palforzia.

Nestlé's "pruning of recently acquired businesses was something we considered a risk: when a company moves at speed and tries to innovate rapidly, there will be attempts that fail", said Bruno Monteyne, analyst at Bernstein.
See Lex

Technology

Disorder at Foxconn factory in Zhengzhou threatens Apple's 14-quarter growth streak

PATRICK MCGEE — SAN FRANCISCO

Apple risks breaking a 14-quarter growth streak during the peak holiday period as chaotic conditions at its assembly plant in China hit iPhone production, marking the company's biggest supply chain challenge since the onset of the pandemic.

Analysts have been cutting Apple earnings estimates after the group issued a rare warning on November 6 that manufacturer Foxconn's factory in Zhengzhou was experiencing "significantly reduced capacity" of high-end iPhone 14 Pro and Pro Max models.

Foxconn has shifted some iPhone production to its other plants in China but has struggled make up for the shortfalls from Zhengzhou, as wait times for the devices have almost doubled to 37 days from a month ago, according to Counterpoint Research.

On Monday, Evercore ISI cut its December quarter revenue forecasts by $8bn, to $122bn, suggesting that revenues will fall $2bn short of the $124bn reported a year ago. This would mark the first year-on-year decline in any quarter since early 2019.

The situation at the iPhone megafactory — known as "iPhone City" — remains volatile after some of the 200,000 workers at the plant clashed with security forces over promised bonuses and poor living conditions last week.

"Apple's biggest challenge is they can't diversify away from China fast enough," said Tom Forte, analyst at DA Davidson, an investment bank.

More than 95 per cent of iPhones are assembled in China, and efforts to diversify to India, Brazil and south-east Asia are expected to take years.

The production disruption comes after Apple navigated the pandemic well, boasting three years of record profits. But the problems at Foxconn caused by Beijing's strict pandemic restrictions have left Apple vulnerable. The company is losing an estimated $1bn a week in lost iPhone sales, according to Wedbush Securities, a financial services group.

iPhone production is estimated to be constrained by up to 8mn-10mn units, as analysts forecast Apple's net profits to shrink 6.2 per cent this quarter to $32.5bn, according to bank estimates pooled by Visible Alpha.

Revenues in Apple's most important quarter were expected to be north of $128.5bn six weeks ago but analysts now expect growth of just 1 per cent to $125.1bn. That estimate is likely to fall in the coming weeks as more banks issue revisions.

Workers clash with security forces during a protest at the plant — Reuters

Forte said: "The good news is they still have elevated demand. The problem everyone else has is they have too much product and can't sell it.

"The most damaging headline for Apple would be that nobody wanted the new iPhone. That's not where we are."

Apple did not respond to requests for comment.

The company's shares have fallen 21 per cent this year.

There is no guarantee that the labour issues will be resolved as Beijing locks down cities to contain a record number of coronavirus cases. Risks of a more sustained disruption have increased after Foxconn offered generous payouts to workers to quell the violent protests. Thousands of newly recruited workers took the offer and left the Zhengzhou plant in recent days, making it more difficult to repopulate assembly lines.

"We think [the Zhengzhou factory] has been operating at 60-70 per cent utilisation for nearly a month," said Evercore analyst Amit Daryanani, projecting supply constraints of 5mn-8mn iPhone units.

Daryanani said continued protests in China against zero-Covid policies could translate into less demand in China, a region that accounts for nearly one-fifth of Apple revenues. "Protests in China against the lockdowns are growing, [so] it's entirely possible the situation gets worse and actually hurts end-demand in China."

Forte said iPhone buyers typically postponed their purchases rather than choosing a rival product. While he is cutting forecasts for the holiday period, he is raising them for the March quarter.

However, that assumed production would return to full capacity, he added. "How much of this is just sales going into the March quarter and how much is lost revenue?"

Additional reporting by Ryan McMorrow in Beijing
See Markets

Spotlight on state of the banking industry

Top sector figures speak at FT summit on outlook for their institutions and how to ease burden on distressed clients

It has been another turbulent and challenging year for banks.

The invasion of Ukraine by Russian president Vladimir Putin in February sparked an energy crisis, causing inflation to soar and adding to the pressure on their most vulnerable customers, many still reeling from the Covid-19 pandemic.

The first meaningful rate rises from central banks followed rapidly, bringing the benefits of higher interest income on loans and more trading revenues for investment banks operating in volatile markets.

However, higher interest rates come alongside the danger of surging loan losses and a credit crunch for all but the safest borrowers.

On the first day of the Financial Times' annual banking summit yesterday, some of the industry's top executives spoke about the outlook for their institutions and about how they plan to ease the burden on distressed clients and address another year of disappointing share price performance.

Charlie Nunn, chief of Lloyds, warned that the UK political chaos caused by ex-prime minister Liz Truss and her chancellor Kwasi Kwarteng's disastrous "mini"-Budget had hurt the credibility of Britain with international investors.

Andrew Griffith, the new UK City minister, said that he wanted to allow more risk-taking by financial businesses in London and outlined some of the policies that the government was to unveil next week as part of its Big Bang 2.0.

Another highlight was former Credit Suisse boss Tidjane Thiam speaking for the first time about his time at the Swiss lender.

He defended the decisions that he had made on risk management and culture, and hit out at the prejudice and racism that he said he had received as the first black CEO of a major European bank.

The summit continues for two more days in London.

Chris Ratcliffe/Jose Sarmento Matos/Stefan Wermuth/Bloomberg

Charlie Nunn
Lloyds chief warns over UK political uncertainty and regulatory costs

The chief executive of Lloyds Banking Group has warned that political uncertainty, regulatory costs, and a lack of focus on competitiveness in the UK are holding back international investment in the country's banks.

"There is nervousness at the moment about the UK . . . around the lack of stability that we've had," said Charlie Nunn.

Nunn visited US investors in the wake of former chancellor Kwasi Kwarteng's "mini" Budget and found a "significant drop-off in certainty". He heard "concerns about the UK as an investment thesis".

The Lloyds boss said divergent economic prospects between the US and the UK — including on productivity growth and balance of trade — would hamper investment in the medium term.

The UK financial services sector had suffered a longer-term discount, he said, caused by large fines — such as the £790mn in charges Lloyds took last year relating to historical fraud at HBOS, which it owns — and a focus on restructuring and implementing regulation over the past 13 years.

"Capital investments have gone to those things rather than innovating and driving growth," said Nunn.

He said emphasis on competitiveness in the Financial Services and Markets bill was welcome, saying it "hasn't been the focus of the last decade".

Nunn said Lloyds was not going to "take advantage" of the lifting of the bankers' bonus cap, "unlike other financial services companies". Barclays, which has a substantial investment bank and a large New York-based workforce, and HSBC, which employs most of its staff in Asia, gain more from the removal of the cap.

He unveiled his £4bn growth strategy for Lloyds in February, after years of retrenchment under previous chief executive António Horta-Osório.

Nunn said its targets — including adding £1.5bn to revenues by 2026 — were "very achievable", even with the darkening economic outlook.

Shares in Lloyds have fallen almost 8 per cent so far this year and have declined almost 30 per cent over the past five years.

Nunn also said Lloyds, which is the UK's largest mortgage lender, was talking to regulators about measures to support homeowners.

While the majority of Lloyds customers were concerned about the cost of living crisis and challenges it would pose in 2023, Nunn said only 1 per cent were at present unable to make ends meet.

Strategies discussed with the Financial Conduct Authority include extending terms on home loans to support consumers struggling to keep up, or switching to interest-only mortgages. While mortgage rates have fallen as the market has stabilised following the "mini" Budget, borrowers face far higher rates than a year ago.

> 'There is nervousness at the moment . . . around the lack of stability we've had'

Lloyds forecast "a relatively mild recession for most of next year", he said, with only a 1 per cent fall in GDP, unemployment reaching 5 per cent and interest rates peaking at 4 per cent.

"It is an unusual recession to have employment still strong but have tight labour markets, which means a difficult time for consumers and businesses, but not an extreme recession," he said.

The crisis among pension funds using liability-driven investment had had a "very modest" impact on the banking sector, said Nunn. Volatility was triggered by the "mini" Budget, which caused turmoil in gilts, forcing some funds to raise cash urgently.

Siddharth Venkataramakrishnan and Stephen Morris

C.S. Venkatakrishnan
Barclays boss focuses on winning round investors to investment bank's merits

The chief executive of Barclays says he has to do a better job convincing investors of the merit of the investment bank as its share price lags behind rivals.

C.S. Venkatakrishnan, in his first interview since he announced he would undergo treatment for non-Hodgkin's lymphoma, also said he needed to end self-inflicted scandals at the British bank's largest division.

Venkatakrishnan said one reason Barclays suffered a discount to its US peers was "the degree to which our investors in the UK understand what an investment bank is. That is on us, we have got to explain it better," he said.

Earnings at the bank's advisory and trading division have dramatically improved during extended periods of volatility caused by Covid and the war in Ukraine, helping push net profit to a record £6.3bn last year.

Most recently, revenues from fixed-income trading doubled in the third quarter and Barclays vaulted Credit Suisse — which is spinning off its advisory unit — to take the number six spot globally in league table rankings.

But Barclays' share price has continued to fall. It has lost 20 per cent this year and trades at a 60 per cent discount to the book value of its assets.

While some of this can be blamed on a steep plunge after the Russian invasion — and Capital Group selling £900mn of stock as part of a wider move out of European banks — consumer-focused UK peers such as Lloyds and NatWest have fared better over the same period, despite having less diversified earnings and relying on one country facing a recession.

"As you can imagine, this is a question on which my colleagues and I rack our brains about quite a lot . . . Number one, there is always a discount attached to an investment banking business because it is considered to be more volatile," he said. "We can always spend more time explaining how the performance is generated and make it clear why it is sustainable, which we will be doing."

Venkatakrishnan also said a clerical error that caused Barclays to improperly offer for sale $17.7bn of structured financial products was a "deeply, deeply embarrassing moment" that had also had an impact.

"Without doubt, what happened with the over-issuance of securities this year hurt us," he said. "We need not have had this internal foot fault."

Venkatakrishnan also pointed to a "fairly generous" dividend and buyback policy that he planned to continue as incentives to investors. "Performance is what we control . . . The stock price is the output and I am confident that it will follow," he said.

> 'Without doubt, what happened with the over-issuance of securities hurt us'

Venkat revealed on Monday that he would be treated for the lymphoma for the next 12 to 16 weeks.

"Nobody likes to hear this diagnosis and, unfortunately, it is all too common," he said. My treatment "won't be a picnic in the park, but it will allow me to be continually and actively engaged in the bank, which is what I'd like in an appropriate way.

"The advantage of working in a large organisation these days is that we offer a lot to employees, when you go through ups and downs, in sickness and in health, you can rely on your colleagues and institution to help you. Now, as a personal matter . . . I will be the proof point of this proposition."

Venkat took over from Jes Staley in November last year after Staley was forced to step down amid a UK regulatory probe into his relationship with Jeffrey Epstein. Staley is appealing against the decision.

Stephen Morris

Tidjane Thiam
Former head of crisis-hit Credit Suisse reflects on and defends stewardship

Former Credit Suisse chief executive Tidjane Thiam has defended his record at the Swiss lender, despite the litany of crises that have hammered the bank since his departure.

The shares hit a 30-year low yesterday, extending their decline to more than 35 per cent since the bank announced a radical restructuring and SFr4bn ($4.2bn) capital raise last month.

A year after Thiam left Credit Suisse in 2020 following a damaging corporate espionage scandal, the bank was forced to close $10bn of supply chain finance funds linked to the defunct Greensill Capital.

It was also hit with a $5.5bn trading loss — the biggest in its 166-year history — tied to the implosion of family office Archegos.

"I was extremely tough and I'm quite proud that none of that happened under my watch," said Thiam yesterday in one of the first times he has talked publicly about his turbulent five years at the top of Credit Suisse.

The bank's lax culture of risk management has frequently been blamed for its failings — including by former and current chairs António Horta-Osório and Axel Lehmann.

But the 60-year-old insisted he had identified this as a problem and tried to address it, pointing to his comments in 2016, his second year in charge, when he called for a "cultural change" at the bank after it wrote down hundreds of millions on its distressed debt holdings, which he claimed traders hid from him.

At the time he said: "I'm confident that we have good processes in place to try and ensure that this never happens again . . . [but] I can never say never."

"Cultural issues can't be resolved overnight," said Thiam. "We did what we did during five years. But [it takes] more than five years to reach that point. It will take a lot of continued effort to deal with those issues."

In a wide-ranging interview, Thiam gave his views on topics from the racist treatment he felt he received in Switzerland to the "good value" currently to be found in investing in the Spac market.

Thiam was the first black chief executive of a big European bank and Credit Suisse's largest shareholder, Harris Associates, has claimed he was a victim of racism.

The bank apologised to Thiam in 2020 following a report in the New York Times that included details of a party to celebrate former chair Urs Rohner's birthday where Thiam was present and a black performer dressed up as a janitor and other guests wore Afro wigs.

> 'I was extremely tough and I'm quite proud that none of that happened under my watch'

"People who are prejudiced say, oh he is playing the race card," said Thiam at the Banking Summit. "Certain segments of the German-speaking press in Zurich . . . waged a very toxic and very effective campaign against me."

Since leaving Credit Suisse, Thiam has focused on a range of interests, including setting up a Spac, taking advantage of a boom in a market that has since imploded amid accusations it offers poor returns for investors.

He defended the blank-cheque investment vehicles, saying they currently offered good value to investors. "Terms are being renegotiated and I think that people who are going into Spacs now will make good money," he said.

Asked about his thoughts on Credit Suisse's share price, Thiam said he was saddened by the bank's plight and felt "no schadenfreude".

Credit Suisse chair Lehmann is due to speak at the summit tomorrow.

Owen Walker and Stephen Morris

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For the period from September 30, 2022 to March 30, 2023, the Notes will carry an interest rate of 4.4375% per annum with an interest amount of US $223.11 per US $10,000 Note.
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Banks

Dublin ready to loosen cap on pay and bonuses imposed after financial crisis

JUDE WEBBER — DUBLIN

The Irish government is loosening the strict caps on bankers' pay and bonuses imposed after the financial crisis, as it dismantles a regime lenders say has hit their ability to attract and retain staff.

Finance minister Paschal Donohoe announced the steps after a year-long review of the retail banking sector that the government was forced to rescue more than a decade ago. Under the proposals, banks will be allowed to pay bonuses of up to €20,000 as well as other benefits such as health insurance — which until now have been banned.

In addition to the bonus payments, Bank of Ireland, which was the first of the banks to return fully to private ownership this year, will no longer be subject to a €500,000 cap on executive pay.

AIB and Permanent TSB, rival lenders that are still majority state-owned following their rescue, will be allowed to abandon the pay cap once the state's stake falls below a threshold to be set by the government. The state owns 57 per cent of AIB and 62.4 per cent of PTSB.

Donohoe declined to spell out that threshold, saying it would depend on market conditions and to do so now "could undermine flexibility".

While he acknowledged the sensitivity of relaxing the rules during a cost of living crisis, he said it was vital to be able to recruit and retain staff, particularly since KBC and Ulster Bank are in the process of leaving the Irish market. Half the workers at BoI, AIB and PTSB earn less than €50,000, he said.

"We are experiencing challenges in getting the right people into the three remaining banks," Donohoe told a news conference. "One-third of those who leave these three banks indicate that pay is an issue and, for those who leave, 40 to 45 per cent of them go to other employers who pay bonuses."

BoI has been lobbying against the pay cap, although its new chief executive, Myles O'Grady, secured an exemption that allows him to be paid nearly €1mn.

BoI welcomed the move and said the first bonuses could be paid in 2024, based on 2023 performance. Neither the BoI, nor the other banks, had immediate comment on how many staff could benefit or how much that would cost.

Pearse Doherty, finance spokesman for Sinn Féin, called the change "a kick in the teeth to struggling households".

BoI was fined a record €100.5mn and AIB €96.7mn for refusing to give customers access to cheaper mortgages that tracked European Central Bank rates in an industry-wide scandal dating back almost two decades.

"[In] the year that has seen record fines issued to AIB and BoI for their part in relation to the tracker mortgage scandal . . . that the parting gift of the minister for finance is to tell the senior executives in . . . all banks that there will be no pay cap restrictions into the future — I think it's tone deaf to the scandal that we have seen," Doherty told RTÉ Radio.

The Banking & Payments Federation Ireland called the changes a "welcome step" and said banks had undergone "an unprecedented transformation".

Crypto. Internal supervision

‘It just kinda went crazy’: lavish FTX spending highlights lack of controls

Bankman-Fried’s exchange showered employees with costly perks before collapsing

NIKOU ASGARI AND JOSHUA OLIVER

When crypto exchange FTX moved its headquarters to the Bahamas from Hong Kong last year, employees discovered that Amazon did not deliver to the island.

They quickly found an alternative, striking a private deal with an air carrier to fly their orders from a Miami depot.

FTX’s airmail programme, which was described in interviews with former employees, illustrates the lavish perks that Sam Bankman-Fried’s crypto exchange bestowed on its staff before it collapsed into bankruptcy this month.

The freewheeling spending clashes with the public image portrayed by Bankman-Fried, the one-time billionaire who is known across the crypto industry as just “SBF”.

Bankman-Fried said his motive in building FTX into a $32bn digital assets behemoth was to maximise the amount that he could donate to charity over his lifetime.

Yet behind the grand promises was an environment where employees’ every need was catered for and where a circle of senior executives in their late 20s and early 30s splashed millions of dollars on everything from travel to sport sponsorship deals and luxury homes.

A lack of internal controls that are typical of large financial companies meant FTX’s spending went largely unchecked, according to former employees and filings in the group’s Delaware bankruptcy case.

“[It was] kids leading kids,” said one former employee. “The entire operation was idiotically inefficient but equally mesmerising,” they added. “I had never witnessed so much money in my life. I don’t think anybody had, including SBF.”

A $135mn deal to secure the naming rights to Miami’s national basketball stadium underscored the firm’s spendthrift culture.

Some staff questioned the Miami deal in company Slack messages, asking whether it would really bring in new clients and deliver value for money.

“They were never overseeing . . . how much return we were actually getting,” said one former employee involved in marketing, referring to senior management. “No one was really following up with ‘what next’ after you got the deal.”

Concerns about value for money from employees with marketing experience were brushed off by Bankman-Fried and the company’s top executives, this person said.

Bankman-Fried or one of two other executives signed off hundreds of millions in spending on sponsorship deals.

“It just kinda went crazy,” the employee said. “If Sam said OK, it was good to go. Regardless of the amount.”

John Ray, the new FTX chief executive leading the exchange through the bankruptcy, said he had never seen “such a complete failure of corporate controls”.

Having a ball: FTX’s spendthrift culture was underscored by a $135mn deal to secure naming rights for Miami’s basketball stadium — Eva Marie Uzcategui/Bloomberg

Ray said in filings: “The [company] did not have the type of disbursement controls that I believe are appropriate for a business enterprise,” adding that company money was spent on buying homes and personal items for FTX employees and advisers.

“There does not appear to be documentation for certain of these transactions . . . and certain real estate was recorded in the personal name of these employees and advisers,” he said.

FTX spent at least $300mn on real estate in the Bahamas, lawyers for the company told the US bankruptcy court last week.

“Most of those purchases related to homes and vacation properties used by senior executives,” they said.

The property portfolio included at least six multimillion-dollar residences at The Bahamas’ luxury and exclusive Albany complex, including the penthouse where Bankman-Fried lived with his inner circle of executives, according to records seen by the FT.

Bankman-Fried declined to comment on the company’s spending.

The perks enjoyed by employees of the now-collapsed exchange included food catered 24/7 in the Bahamas office, “in addition to the free groceries, barbershop pop-up and biweekly massages”, according to one employee.

FTX also provided Bahamas staff a “full suite of cars and gas covered for all employees [and] unlimited, full expense covered trips to any office globally”, the employee added.

Staff at FTX US, its separate arm for the American market, were allowed $200 a day in DoorDash food delivery credits.

Alameda Research, a crypto hedge fund founded by Bankman-Fried, also owes $55,319 to the Margaritaville Beach Resort in Nassau, which was founded by US musician Jimmy Buffett, according to bankruptcy filings this week.

A ‘Who’s To Blame’ margarita at one of the resort’s bars costs $13.

Bankruptcy filings describe a haphazard expenses system.

“Employees of the FTX Group submitted payment requests through an online ‘chat’ platform where a disparate group of supervisors approved disbursements by responding with personalised emojis,” Ray said.

Bankman-Fried’s companies also extended loans to executives, bankruptcy filings show.

His trading firm, Alameda Research, loaned $1bn to Bankman-Fried himself, $543mn to head of engineering Nishad Singh and $55mn to Ryan Salame, co-chief executive of FTX Digital Markets, its entity in The Bahamas.

Salame, in addition to his role at FTX, bought four local restaurants in the western Massachusetts town of Lenox, near where he grew up, including the Olde Heritage Tavern and Sweet Dreams bakery.

Recent alumni of Bankman-Fried’s crypto shops also splashed out on big purchases before the group’s bankruptcy.

Sam Trabucco, former co-chief executive of Alameda, bought a boat shortly before stepping down from his post in August, only months before the trading firm collapsed. He named the boat “Soak my Decks”.

Inner circle of ‘SBF’
Key figures in charge at failed platform

Sam Bankman-Fried
The son of two Stanford law professors, Bankman-Fried took a job as a Jane Street trader after graduating in physics from MIT.

He left Wall Street to work briefly at the Centre for Effective Altruism, a philanthropic initiative. But Bankman-Fried quickly became fascinated by the price gaps on different crypto exchanges in Asia. He made his first millions taking advantage of these inefficiencies through the trading firm he founded, Alameda Research. He later founded FTX.

Former employees describe “SBF” as an object of cult-like loyalty. “Everyone employed at FTX was obsessed and I supposed it made sense. The kid was young, the principles were revolutionary, the ideas were golden. He was the richest 29-30 year old on Earth. Who was I to challenge that?”

Gary Wang
Wang, FTX’s chief technology officer and second-largest shareholder, first met Bankman-Fried at maths camp in high school and they continued their friendship as roommates at MIT.

A former employee said that they “had their own language”. Wang was an isolated figure but a prolific coder.

“Gary definitely had root access to everything tech,” said a former employee, adding: “Gary would start most new projects by himself . . . He did no management.”

Nishad Singh
Singh graduated from the University of California, Berkeley, and worked at Facebook before joining Alameda Research as director of engineering.

He became a key member of Bankman-Fried’s inner circle with former employees saying that he controlled much of the company’s code. In a blog post, Bankman-Fried said that he met Singh because the young coder was a high school friend of his brother.

A former employee said that he was “super productive and coded all the time. Very sociable and friendly, everyone loved him.”

Caroline Ellison
A Stanford graduate, Ellison met Bankman-Fried at Jane Street before joining Alameda. Her co-CEO, Sam Trabucco, in April said that Ellison was in charge of running the trading firm’s systems while he led trading strategy.

Former employees say Ellison and Bankman-Fried had been romantically involved over the past eight months.

Caroline Ellison was in charge of running the trading firm’s systems

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Commodities

LME claims $20bn nickel trade chaos threatened to tip it into ‘death spiral’

HARRY DEMPSEY

The London Metal Exchange claims that $20bn of margin calls would have led to the simultaneous bankruptcy of multiple clearing members and created systemic market risk, according to its defence against a $470mn lawsuit over the cancelling of billions of dollars worth of nickel trades in March.

In court documents detailing its case against judicial review claims filed by hedge fund Elliott Management and market maker Jane Street, the world’s largest metals marketplace said the staggering surge in initial margins — cash handed over to make a trade — had threatened to tip the LME into a “death spiral”.

The requirement for $19.75bn worth of intraday margin calls — some 10 times larger than the previous record on March 4 — came after nickel prices surged 230 per cent in one day on March 8 and threatened to cause a systemic collapse in the metals market.

Elliott Management stood to profit by hundreds of millions of dollars if the nickel trades had been allowed to stand and it claimed that the exchange acted “unlawfully” by exceeding its powers in cancelling the trades.

The LME has been criticised for its decision to suspend and cancel nickel trades during the market chaos, facing accusations it should have acted sooner to suspend trading, which would have avoided the need to reverse trades.

LME said: “Elliott’s and Jane Street’s grounds for complaint have no merit and are based on a fundamental misunderstanding of the situation on 8 March and the decisions taken by the LME. All the actions taken on 8 March were lawful and made in the interest of the market as a whole.”

London Metal Exchange has been accused of exceeding its powers

The court documents, released on Monday, show that on March 7 — when nickel prices almost doubled in one day, three members missed initial margin calls due for payment by 9am and margin requirements increased by $7bn — the LME still deemed the market to be orderly. It believed there were legitimate geopolitical and macroeconomic reasons for the price increase, namely potential sanctions on large nickel producer Russia.

The historic market chaos was further stoked by a large bet on falling prices held by the world’s biggest stainless steel producer, Tsingshan, in the over the counter market, which the LME was not aware of.

LME Clear, the clearing house for the exchange, calculated on March 8 — when prices almost doubled in frenzied trading before the market was suspended — that a minimum of $19.75bn of intraday margin calls would have to have been paid on that day.

Elliott Management and Jane Street declined to comment.

Equities

Investors bet protests will prompt Beijing to loosen Covid-19 curbs

HUDSON LOCKETT — HONG KONG

Investors are shifting into Chinese stocks on bets widespread protests against the country’s Covid-19 policies will prompt President Xi Jinping to accelerate reopening of the world’s second-biggest economy.

A rush of buying from offshore investors in China’s mainland stock market and outsize gains across the country’s equity benchmarks yesterday signalled a sharp turnround in market sentiment after a sell-off at the start of the week led global markets lower.

The CSI 300 index of large and actively traded Shanghai- and Shenzhen-listed stocks rose 3.1 per cent and Hong Kong’s Hang Seng China Enterprises index gained 6.2 per cent with both gauges more than reversing losses from the previous day.

The indices are up 9.7 per cent and 26.3 per cent, respectively, for November.

At the same time, the value of onshore shares bought via Hong Kong’s stock connect trading scheme — the main way foreign investors access China’s markets — yesterday was more than double the total dumped during Monday’s rout, according to Financial Times calculations based on exchange data.

Traders and analysts said the buying was motivated by expectations that China’s government would soon alter its response to the pandemic after protests in at least 18 cities across China, spurred by outrage over a deadly apartment fire in Urumqi, Xinjiang, widely blamed on coronavirus restrictions.

Helen Qiao, chief greater China economist at Bank of America, said she expected the popular discontent to accelerate the pace at which Beijing phased out its zero-Covid policy.

> ‘The market is looking for excuses to rally because the fundamentals are moving towards recovery’

“Within this week or at the most by the end of next week we think that we’ll see top decision makers . . . coming out and talking about how and why [China] should relax Covid controls,” she said.

Other analysts were less bullish with some warning that policymakers could instead reaffirm restrictions in the short term.

“The short-term focus on the protests by investors is understandable,” said Chi Lo, senior greater China strategist at BNP Paribas Asset Management, adding that yesterday’s rally followed a pattern seen throughout much of this year in which anticipated relaxation of coronavirus controls drove sharp short-term gains for Chinese equities.

“The market is looking for excuses to rally because the fundamentals are moving towards the recovery side,” he said, but the protests “could push the government to open up faster, or they may backfire if Beijing really wants to clamp down — we just don’t know”.

Traders said investors had been anticipating an announcement from top policymakers yesterday that would mark the start of substantial relaxations for Covid-19 containment measures.

While China’s National Health Commission only ended up flagging relatively minor tweaks to vaccine policy, that came after onshore markets had closed and foreign investors had bought about $1.4bn of Chinese shares already.

See Markets Insight

China protests fuel uncertainty for investors

Alicia Garcia-Herrero

Markets Insight

This year has not been easy for China or for investors in the country. It has been characterised by an underwhelming stock market, a weakening renminbi and capital outflows, especially from the fixed income market.

Both trends though do not necessarily stand out in a global context. The hawkish turn by the US Federal Reserve on monetary policy has harmed stock markets around the world and virtually every currency has depreciated, except those tightly pegged to the dollar.

Still, things could have been different for China as they were in 2020 and early 2021 when it was expected to be "first in, first out" with the Covid-19 pandemic.

With a large economic growth differential in China's favour over the rest of the world, there was massive foreign direct investment into the country as well as a surge in portfolio flows.

In fact, the foreign share in China's bond and stock markets peaked at 3.5 per cent in mid-2021.

But things started to change in late 2021, first with the default of China's largest real estate developer, Evergrande, on its international debts and troubles at several of its industry peers.

This was followed by the arrival of the Omicron variant of Covid in early January 2022 and the Chinese government's decision to stick with zero-Covid policies even when faced with a much more contagious virus. This has led to a clear reduction in mobility and, thereby, economic activity in the course of 2022.

Since then, Chinese stock markets have underwhelmed and tumbled in late October after the Communist party congress confirmed Xi Jinping's unprecedented third term as president.

However, only a few days later, two important announcements were made to tackle China's problems.

The first was the gradual lifting of zero-Covid policies and the second was the People's Bank of China's 16 measures to support the real estate sector.

Outright market euphoria followed, as if the path towards leaving with the virus was not only clear but also feasible and the government could shore up a moribund real estate sector just through financial support from banks with deep pockets and by easing regulations.

Reality has struck back. Zero-Covid policies continue unabated and more and more cities — accounting for about 20 per cent of China's GDP by now, according to Nomura — are in lockdown. In the same vein, we are still to see a rebound in housing prices that would make the recovery of the real estate sector sustainable.

> Zero-Covid policies continue unabated and more and more cities are in lockdown

Now, protests are expanding across different cities and markets have reacted negatively. The question is what to expect next.

Starting with the positive scenario, these protests — which have been rather focused on Covid policies so far — could become the wake-up call needed for China to move ahead with lifting restrictions to deal with the virus.

However, it is one thing to want to open and a different thing to do so with a moderate cost to human lives.

China's vaccination rate for the elderly population remains stubbornly low. Less than 40 per cent of 80-year-olds and above are reported to have received a third dose of a Covid vaccine.

Investors should watch for announcements on rapid — perhaps compulsory — vaccination for a constructive outlook for Chinese markets.

Instead, in the absence of a major vaccination campaign and the stubborn mantra of zero-Covid policies remaining in place, the protests are bound to expand, risking a harsh reaction from the government.

This will only worsen China's economic scenario as consumption and sentiment remain repressed with clear negative consequences for investment.

In addition, fiscal and monetary stimuli are much more constrained than in 2008 as local governments are experiencing a collapse in land sales and a massive increase in Covid-related expenditure.

If the protests lead to a harsher regime, the lack of appetite of foreign investors would probably lead to more draconian capital controls and a weak renminbi. The US might also push more measures to limit technological transfers to China.

In addition, there is still the not insignificant tail risk of potential conflict in the Taiwan Strait. If political tension rises in China, Xi might want to focus domestic attention on the one issue that unites much of the country — reunification with Taiwan. All in all, we are bracing for a true rollercoaster as far as Chinese markets are concerned.

Alicia Garcia-Herrero is chief economist for the Asia-Pacific at Natixis and senior research fellow at the Bruegel Institute

Terna

Terna, the Transmission System Operator of the Italian National Electricity Grid, has published two market surveys on the sector of High Voltage Direct Current (HVDC) cables, with nominal voltage up to +/- 500 kV and transmission capacity up to 600 MW, one for high depth submarine links, and another one for the VSC (Voltage Source Converter) converter stations.

The notices are accessible at the link:
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The day in the markets

What you need to know

- **Wall Street stocks edge lower despite rally in Chinese markets**
- **Investors wager that Beijing will ease Covid restrictions**
- **Crude oil advances with international benchmark Brent rising**

US stocks slipped yesterday as a big rebound in Chinese markets failed to stoke a strong reaction on Wall Street.

Wall Street's benchmark S&P 500 fell 0.2 per cent and the tech-heavy Nasdaq Composite lost 0.4 per cent, echoing tepid moves in Europe.

The muted performance contrasted with Chinese equities, which rebounded sharply as investors wagered that Beijing would press on with easing its tough Covid-19 policies despite the government's commitment to keeping its hardline measures.

Hong Kong's Hang Seng index soared 5.2 per cent following a 1.6 per cent decline in the previous session while the CSI 300 of Shanghai and Shenzhen stocks added 3.1 per cent.

"The direction of reopening is very clear in our view and we don't think the government will double down on pandemic control measures," said Xiangrong Yu, an analyst at Citi.

"We maintain our base case that reopening will gain momentum post the National People's Congress [in March] next year, and see higher risk of an accelerated reopening," he said.

Although some of the "front-loading" by investors into Chinese equities with low valuations had reversed thanks to "skittish" market sentiment, China was likely to stick with its zero-Covid measures until at least next year, and despite the protests, said Mitul Kotecha, head of emerging markets strategy at TD Securities.

"Ultimately, there's nothing here yet that changes the perspective of investors," Kotecha added.

US equities have rallied this month but sold off yesterday after fresh data showed that consumer confidence in the world's biggest economy fell for the second consecutive month in November, as prices for food and gas rose.

Investors were also alert to hawkish comments from John Williams, president of the Federal Reserve Bank of New York, who warned on Monday that US unemployment could rise from its current level of 3.7 per cent to 4.5-5 per cent by the end of next year.

"Inflation is far too high and persistently high inflation undermines the ability of our economy to perform at its full potential," he said in a statement.

Across the Atlantic, the pan-regional Stoxx Europe 600 fell 0.1 per cent but London's FTSE 100 added 0.5 per cent.

Oil prices rose, with the international benchmark Brent crude oil up 0.3 per cent to $83.47 a barrel. **George Steer**

Offshore investors snap up China shares on reopening hopes

Net flows to Chinese markets via Hong Kong's stock connect scheme (Rmb, bn)

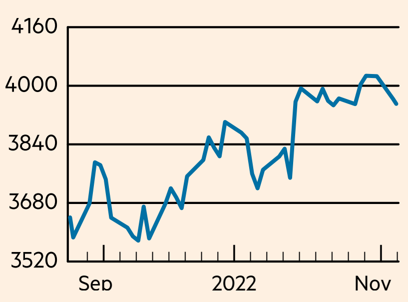
Flows cover year to date
Sources: Bloomberg; FT research

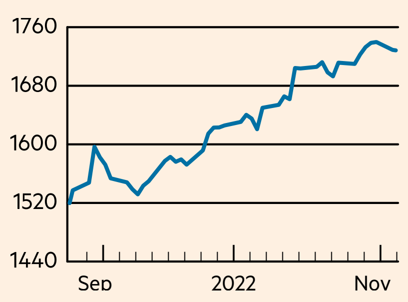
Markets update

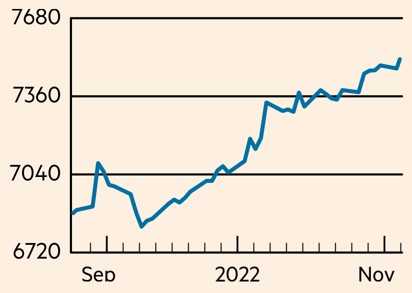
	US	Eurozone	Japan	UK	China	Brazil
Stocks	**S&P 500**	**Eurofirst 300**	**Nikkei 225**	**FTSE100**	**Shanghai Comp**	**Bovespa**
Level	3950.54	1728.34	28027.84	7512.00	3149.75	111794.33
% change on day	-0.34	-0.03	-0.48	0.51	2.31	2.77
Currency	**$ index (DXY)**	**$ per €**	**Yen per $**	**$ per £**	**Rmb per $**	**Real per $**
Level	106.407	1.036	138.325	1.200	7.167	5.299
% change on day	-0.257	-0.385	-0.339	-0.332	-0.458	-1.387
Govt. bonds	**10-year Treasury**	**10-year Bund**	**10-year JGB**	**10-year Gilt**	**10-year bond**	**10-year bond**
Yield	3.722	1.918	0.249	3.093	2.899	12.801
Basis point change on day	3.510	-6.700	-0.380	-2.600	3.100	-26.400
World index, Commods	**FTSE All-World**	**Oil - Brent**	**Oil - WTI**	**Gold**	**Silver**	**Metals (LMEX)**
Level	407.11	84.71	78.39	1746.55	21.48	3771.80
% change on day	-0.01	0.98	1.49	-0.30	0.66	-0.14

Yesterday's close apart from: Currencies = 16:00 GMT; S&P, Bovespa, All World, Oil = 17:00 GMT; Gold, Silver = London pm fix. Bond data supplied by Tullett Prebon.

Main equity markets







Biggest movers

%	US		Eurozone		UK	
Ups	Ralph Lauren	4.45	Saipem	4.18	Standard Chartered	5.04
	Celanese	4.11	Kone	3.21	Hsbc Holdings	4.44
	Carmax	4.09	Tenaris	2.92	Prudential	3.92
	Catalent	3.62	Arcelormittal	2.78	Rio Tinto	3.73
	Halliburton	3.36	Novo Nordisk	2.50	Anglo American	3.66
Downs	Broadridge Fin Solutions	-2.87	Dsm	-2.94	Halma	-6.30
	Lumen	-2.63	Cap Gemini	-2.81	Sage	-3.68
	Illumina	-2.62	Linde	-2.50	Croda Int	-2.78
	Trimble	-2.42	Lindt	-2.40	Ocado	-2.65
	Constellation Brands	-2.41	Telecom Italia	-2.33	Experian	-2.61

Prices taken at 17:00 GMT. Based on the constituents of the FTSE Eurofirst 300 Eurozone.

All data provided by Morningstar unless otherwise noted.

Wall Street

Entertainment group **AMC Networks**, home to such TV hits as *Mad Men*, *Breaking Bad* and *The Walking Dead*, dipped following the unexpected departure of its chief executive.

Christina Spade stepped down less than three months after being promoted from chief operating officer and chief financial officer. No reason was given for her sudden exit.

Electric truck group **Lordstown Motors** rallied on news that its first units, from an initial batch of 500 vehicles, were being delivered to customers. The Ohio group said its flagship pick-up, the Endurance, had received certification from the Environmental Protection Agency and the California Air Resources Board, paving the way for these sales.

Vaccine-maker **Novavax** climbed after the World Health Organization issued an updated emergency use listing for its Covid-19 vaccine Nuvaxovid.

Medical technology group **Apollo Endosurgery** soared after agreeing to be bought by biotech company Boston Scientific for $10 a share — a 67 per cent premium on Monday's closing price.

The deal, expected to close in the first half of next year, gave Apollo an enterprise value of $615mn with debt.

Apollo develops devices used in the treatment of various gastrointestinal conditions. *Ray Douglas*

Europe

Swedish clothes retailer **Boozt** jumped after upgrading its full-year outlook.

"We experienced better momentum during November . . . especially the Black Friday week with new record sales," noted the online group, which said its newly expanded fulfilment operations also set a record for the number of orders handled each hour during peak periods.

Boozt now expected net revenue growth in the upper end of its 10 per cent to 15 per cent target for 2022 and operating profit towards the top of its SKr235mn to SKr285mn ($22.2mn to $27mn) range.

Another upgrade, this time by **ASM International**, sent the Dutch chipmaker rallying, with fourth-quarter revenue expected to land between €630mn and €660mn, up from an earlier goal of €600mn to €630mn. US export sanctions on China were less onerous than previously thought, said ASMI, and it was able to convert more of its backlog than expected into shipments to other regions.

Italian football club **Juventus** slid following news that its entire board and the chair had stepped down amid an investigation into its finances.

The resignations come as prosecutors and Italy's market regulator scrutinise the accounting of players' salaries and transfers. The Serie A club denies wrongdoing. *Ray Douglas*

London

Energy services company **Wood Group** fell sharply after presenting midterm guidance that was "much lower than expected", said Citi.

Adjusted core profit margins would be flat in the "nearer term" while margins during the medium term fell short of estimates, prompting the broker to describe Wood's targets as "disappointing".

Convenience foods manufacturer **Greencore** sank despite announcing a share buyback programme of up to £15mn and releasing numbers for its fiscal year that held few surprises.

What concerned investors was Greencore's sombre outlook for 2023. "We remain cautious about the potential impact of the recessionary environment and cost of living factors on consumer spending through the year ahead," warned the Ireland-based company.

Low-cost airline **easyJet** sank on delivering a headline pre-tax loss of £178mn for its financial year, its third consecutive annual loss.

The group said it had "one of the strongest balance sheets in European aviation" heading into 2023, but AJ Bell cautioned that "if you exclude peak periods like half-term, Christmas and New Year, the airline is having to work extra hard to fill planes" — a situation that could squeeze margins. *Ray Douglas*

MARKET DATA

WORLD MARKETS AT A GLANCE
FT.COM/MARKETSDATA

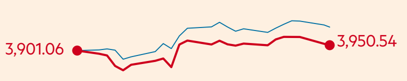
Change during previous day's trading (%)

S&P 500	Nasdaq Composite	Dow Jones Ind	FTSE 100	FTSE Eurofirst 300	Nikkei	Hang Seng	FTSE All World $	$ per €	$ per £	¥ per $	£ per €	Oil Brent $ Sep	Gold $
-0.34%	-0.52%	-0.27%	0.51%	-0.03%	-0.48%	5.24%	-0.01%	-0.385%	-0.332%	-0.339%	-0.116%	1.53%	-0.30%

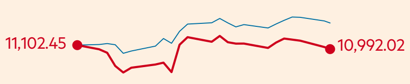
Stock Market movements over last 30 days, with the FTSE All-World in the same currency as a comparison

AMERICAS

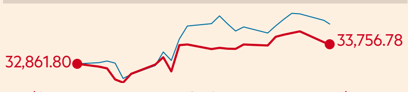
Oct 30 - - — Index — All World

S&P 500 New York


Day ↘ -0.34% Month ↗ 1.26% Year ↘ -15.14%

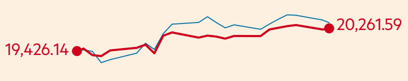
Nasdaq Composite New York


Day ↘ -0.52% Month ↘ -1.01% Year ↘ -30.36%

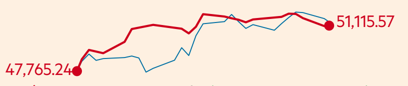
Dow Jones Industrial New York


Day ↘ -0.27% Month ↗ 2.71% Year ↘ -3.94%

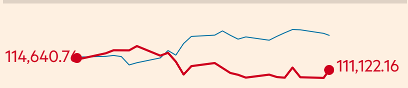
Oct 30 - Nov 29 — Index — All World

S&P/TSX COMP Toronto


Day ↗ 0.29% Month ↗ 4.14% Year ↘ -4.12%

IPC Mexico City


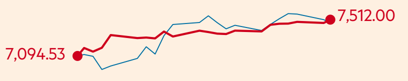
Day ↘ -1.45% Month ↗ 2.56% Year ↗ 1.10%

Bovespa São Paulo


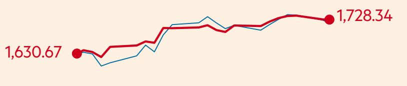
Day ↗ 2.77% Month ↘ -2.36% Year ↗ 8.77%

EUROPE

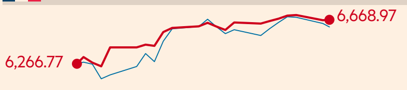
Oct 30 - Nov 29 — Index — All World

FTSE 100 London


Day ↗ 0.51% Month ↗ 6.64% Year ↗ 5.71%

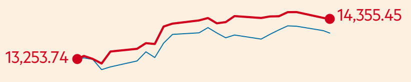
FTSE Eurofirst 300 Europe


Day ↘ -0.03% Month ↗ 6.48% Year ↘ -4.48%

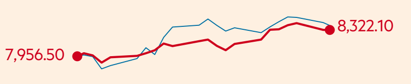
CAC 40 Paris


Day ↗ 0.06% Month ↗ 6.81% Year ↘ -1.05%

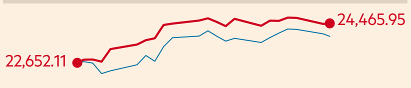
Oct 30 - Nov 29 — Index — All World

Xetra Dax Frankfurt


Day ↘ -0.19% Month ↘ -0.17% Year NaN%

Ibex 35 Madrid


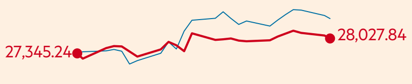
Day ↘ -0.01% Month ↗ 5.12% Year ↘ -0.96%

FTSE MIB Milan


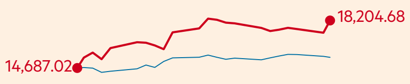
Day ↗ 0.10% Month ↗ 8.27% Year ↘ -5.39%

ASIA

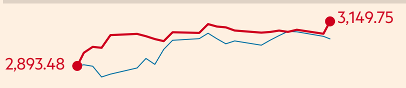
Oct 30 - Nov 29 — Index — All World

Nikkei 225 Tokyo


Day ↘ -0.48% Month ↗ 3.43% Year ↘ -2.49%

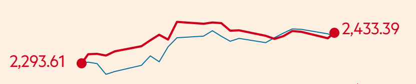
Hang Seng Hong Kong


Day ↗ 5.24% Month ↗ 22.37% Year ↘ -24.47%

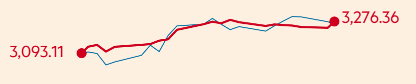
Shanghai Composite Shanghai


Day ↗ 2.31% Month ↗ 5.59% Year ↘ -11.63%

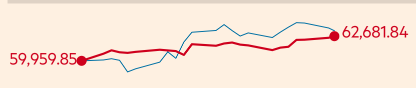
Oct 30 - Nov 29 — Index — All World

Kospi Seoul


Day ↗ 1.04% Month ↗ 7.27% Year ↘ -17.13%

FTSE Straits Times Singapore


Day ↗ 1.12% Month ↗ 6.98% Year ↗ 3.36%

BSE Sensex Mumbai


Day ↗ 0.28% Month ↗ 4.48% Year ↗ 9.70%

Country	Index	Latest	Previous
Argentina	Merval	166455.19	163930.86
Australia	All Ordinaries	7442.00	7418.60
	S&P/ASX 200	7253.30	7229.10
	S&P/ASX 200 Res	5925.30	5838.40
Austria	ATX	3224.85	3208.77
Belgium	BEL 20	3659.13	3682.06
	BEL Mid	9482.39	9527.76
Brazil	IBovespa	111794.33	108782.15
Canada	S&P/TSX 60	1231.31	1228.80
	S&P/TSX Comp	20279.14	20220.49
	S&P/TSX Div Met & Min	1350.74	1373.18
Chile	S&P/CLX IGPA Gen	28142.93	27855.61
China	FTSE A200	10184.46	9890.48
	FTSE B35	9000.71	8988.96
	Shanghai A	3301.37	3226.70
	Shanghai B	291.63	287.43
	Shanghai Comp	3149.75	3078.55
	Shenzhen A	2109.29	2065.18
	Shenzhen B	1138.14	1119.06
Colombia	COLCAP	1261.61	1260.21
Croatia	CROBEX	2013.05	2011.29

Country	Index	Latest	Previous
Cyprus	CSE M&P Gen	68.46	68.68
Czech Republic	PX	1217.75	1235.44
Denmark	OMXC Copenahgen 20	1771.48	1756.69
Egypt	EGX 30	13184.26	12917.22
Estonia	OMX Tallinn	1737.91	1721.50
Finland	OMX Helsinki General	10977.36	10907.26
France	CAC 40	6668.97	6665.20
	SBF 120	5114.66	5114.66
Germany	M-DAX	25356.56	25600.97
	TecDAX	3025.83	3073.46
	XETRA Dax	14355.45	14383.36
Greece	Athens Gen	911.00	907.06
	FTSE/ASE 20	2218.74	2205.38
Hong Kong	Hang Seng	18204.68	17297.94
	HS China Enterprise	6236.72	5872.38
	HSCC Red Chip	3593.07	3470.99
Hungary	Bux	45780.62	45588.74
India	BSE Sensex	62681.84	62504.80
	Nifty 500	15812.45	15784.45
Indonesia	Jakarta Comp	7012.07	7017.36
Ireland	ISEQ Overall	7261.89	7267.08
Israel	Tel Aviv 125	1868.14	1887.91

Country	Index	Latest	Previous
Italy	FTSE Italia All-Share	26476.45	26458.05
	FTSE Italia Mid Cap	39767.81	39784.77
	FTSE MIB	24465.95	24440.88
Japan	2nd Section	7228.27	7239.06
	Nikkei 225	28027.84	28162.83
	S&P Topix 150	1710.67	1720.04
	Topix	1992.97	2004.31
Jordan	Amman SE	2495.96	2483.49
Kenya	NSE 20	1643.15	1652.06
Kuwait	KSX Market Index	6633.44	6603.51
Latvia	OMX Riga	1108.98	1111.68
Lithuania	OMX Vilnius	938.65	933.86
Luxembourg	LuxX	1478.59	1464.45
Malaysia	FTSE Bursa KLCI	1476.96	1486.54
Mexico	IPC	50341.77	51081.33
Morocco	MASI	10870.17	10835.23
Netherlands	AEX	717.74	720.51
	AEX All Share	978.25	980.44
New Zealand	NZX 50	11395.35	11308.31
Nigeria	SE All Share	47436.45	47554.34
Norway	Oslo All Share	1017.37	1006.88
Pakistan	KSE 100	42373.59	42071.34

Country	Index	Latest	Previous
Philippines	Manila Comp	6780.78	6606.94
Poland	Wig	55950.99	55748.47
Portugal	PSI 20	5830.42	5818.76
	PSI General	4447.68	4457.49
Romania	BET Index	11730.66	11530.21
Russia	Micex Index	2436.57	2445.30
	RTX	1245.71	1212.57
Saudi-Arabia	TADAWUL All Share Index	10746.64	10746.64
Singapore	FTSE Straits Times	3276.36	3240.06
Slovakia	SAX	336.17	336.17
Slovenia	SBI TOP	-	-
South Africa	FTSE/JSE All Share	73127.92	73368.25
	FTSE/JSE Res 20	71368.95	70794.66
	FTSE/JSE Top 40	66815.87	66993.69
South Korea	Kospi	2433.39	2408.27
	Kospi 200	315.58	312.21
Spain	IBEX 35	8322.10	8323.20
Sri Lanka	CSE All Share	8375.21	8309.94
Sweden	OMX Stockholm 30	2092.24	2096.38
	OMX Stockholm AS	800.23	803.82
Switzerland	SMI Index	11077.81	11162.16

Country	Index	Latest	Previous
Taiwan	Weighted Pr	14709.64	14556.87
Thailand	Bangkok SET	1624.39	1616.91
Turkey	BIST 100	4962.48	4962.48
UAE	Abu Dhabi General Index	9222.93	9251.11
UK	FT 30	2507.60	2515.20
	FTSE 100	7512.00	7474.02
	FTSE 4Good UK	6760.97	6735.02
	FTSE All Share	4112.30	4098.49
	FTSE techMARK 100	6306.44	6405.18
USA	DJ Composite	11246.15	11251.49
	DJ Industrial	33756.78	33849.46
	DJ Transport	14269.94	14145.40
	DJ Utilities	953.75	961.88
	Nasdaq 100	11505.16	11587.75
	Nasdaq Cmp	10992.02	11049.50
	NYSE Comp	15405.17	15370.44
	S&P 500	3950.54	3963.94
	Wilshire 5000	39298.64	39387.61
Venezuela	IBC	13808.47	13310.51
Vietnam	VNI	1032.16	1005.69

Country	Index	Latest	Previous
Cross-Border	DJ Global Titans ($)	416.70	419.14
	Euro Stoxx 50 (Eur)	3933.23	3935.51
	Euronext 100 ID	1273.33	1272.19
	FTSE 4Good Global ($)	9653.14	9706.15
	FTSE All World ($)	407.11	407.16
	FTSE E300	1728.34	1728.94
	FTSE Eurotop 100	3413.65	3407.91
	FTSE Global 100 ($)	2482.25	2497.30
	FTSE Gold Min ($)	1636.57	1682.61
	FTSE Latibex Top (Eur)	4440.00	4432.20
	FTSE Multinationals ($)	2651.69	2686.41
	FTSE World ($)	739.14	740.81
	FTSEurofirst 100 (Eur)	4607.64	4592.59
	FTSEurofirst 80 (Eur)	5333.76	5334.93
	MSCI ACWI Fr ($)	617.15	625.15
	MSCI All World ($)	2668.44	2703.67
	MSCI Europe (Eur)	1761.05	1770.54
	MSCI Pacific ($)	2620.58	2638.41
	S&P Euro (Eur)	1756.46	1758.08
	S&P Europe 350 (Eur)	1771.01	1772.42
	S&P Global 1200 ($)	2938.09	2938.58
	Stoxx 50 (Eur)	3765.33	3762.91

(c) Closed. (u) Unavaliable. † Correction. ♥ Subject to official recalculation. For more index coverage please see www.ft.com/worldindices. A fuller version of this table is available on the ft.com research data archive.

STOCK MARKET: BIGGEST MOVERS

AMERICA

ACTIVE STOCKS	stock traded m's	close price	Day's change
Tesla	85.4	182.68	-0.24
Apple	57.4	142.11	-2.12
Amazon.com	30.4	92.41	-1.54
Nvidia	24.6	157.00	-1.27
Advanced Micro Devices	20.5	73.43	0.24
Microsoft	17.9	239.67	-2.09
Meta Platforms	12.2	109.12	0.34
Unitedhealth	8.0	525.96	-6.31
Alphabet	7.7	95.09	-0.96
Netflix	7.2	279.00	-2.18

BIGGEST MOVERS	Close price	Day's change	Day's chng%
Ups			
Ralph Lauren	112.75	4.80	4.45
Celanese	104.91	4.14	4.11
Carmax	68.24	2.68	4.09
Catalent	48.62	1.70	3.62
Halliburton	37.09	1.21	3.36
Downs			
Broadridge Fin Solutions	142.29	-4.21	-2.87
Lumen	5.38	-0.15	-2.63
Illumina	211.23	-5.69	-2.62
Trimble	56.07	-1.39	-2.42
Constellation Brands	251.30	-6.20	-2.41

Based on the constituents of the S&P500

LONDON

ACTIVE STOCKS	stock traded m's	close price	Day's change
Shell	175.6	2400.50	40.00
Bp	162.1	492.05	8.50
Glencore	155.9	550.80	12.50
Rio Tinto	151.3	5563.00	200.00
Hsbc Holdings	138.6	510.30	21.70
Astrazeneca	135.3	11060.00	10.00
Unilever	96.2	4124.50	-30.50
Standard Chartered	84.8	609.00	29.20
Reckitt Benckiser	83.9	5940.00	-28.00
Gsk	83.2	1417.80	23.00

BIGGEST MOVERS	Close price	Day's change	Day's chng%
Ups			
Standard Chartered	609.00	29.20	5.04
Hsbc Holdings	510.30	21.70	4.44
Prudential	964.80	36.40	3.92
Rio Tinto	5563.00	200.00	3.73
Anglo American	3289.50	116.00	3.66
Downs			
Wood (john)	134.00	-25.40	-15.93
Petrofac	84.05	-9.40	-10.06
Renishaw	3658.00	-336.00	-8.41
Halma	2128.00	-143.00	-6.30
Genus	2898.00	-170.00	-5.54

Based on the constituents of the FTSE 350 index

EURO MARKETS

ACTIVE STOCKS	stock traded m's	close price	Day's change
Nestle N	433.2	113.23	-2.28
Roche Gs	323.2	314.72	-3.21
Novo Nordisk B A/s	301.7	118.32	2.89
Novartis N	290.7	84.77	0.02
Unicredit	249.4	12.96	-0.14
Iberdrola	241.0	10.65	-0.10
Asml Holding	209.8	560.20	-6.60
Cs N	195.5	2.95	-0.11
Totalenergies	184.1	59.13	1.39
Eni	180.9	14.20	0.18

BIGGEST MOVERS	Close price	Day's change	Day's chng%
Ups			
Novo Nordisk B A/s	118.32	2.89	2.50
Totalenergies	59.13	1.39	2.41
Richemont N	122.07	2.70	2.26
Muench.rueckvers.vna O.n.	301.80	6.50	2.20
Fresenius Se+co.kgaa O.n.	26.36	0.52	2.01
Downs			
Sartorius Sted Bio	318.30	-12.80	-3.87
Cs N	2.95	-0.11	-3.59
Sartorius Ag Vzo O.n.	356.80	-13.00	-3.52
Adyen	1427.80	-46.40	-3.15
Lonza N	494.90	-14.15	-2.78

Based on the constituents of the FTSEurofirst 300 Eurozone index

TOKYO

ACTIVE STOCKS	stock traded m's	close price	Day's change
Eisai Co.,	814.7	8988.00	-596.00
Softbank .	802.4	5959.00	-83.00
Mitsubishi Ufj Fin,.	539.4	764.40	12.50
Fast Retailing Co.,	511.2	81460.00	1390.00
Toyota Motor	443.4	2005.50	-27.50
Tokyo Electron	416.8	44810.00	-490.00
Sumitomo Mitsui Fin,.	383.6	4672.00	1.00
Tokio Marine Holdings,.	299.9	2905.50	15.50
Nippon Yusen Kabushiki Kaisha	280.8	2927.00	-7.50
Sony	263.0	11370.00	-140.00

BIGGEST MOVERS	Close price	Day's change	Day's chng%
Ups			
Pacific Metals Co.,	2041.00	94.00	4.83
Takashimaya ,	1782.00	63.00	3.66
Isetan Mitsukoshi Holdings	1306.00	42.00	3.32
Sumitomo Metal Mining Co.,	4657.00	147.00	3.26
J.front Retailing Co.,	1163.00	31.00	2.74
Downs			
Eisai Co.,	8988.00	-596.00	-6.22
Alps Alpine Co.,	1303.00	-44.00	-3.27
Taiyo Yuden Co.,	4355.00	-120.00	-2.68
Tokyo Electric Power ,orporated	516.00	-12.00	-2.27
Nsk	758.00	-16.00	-2.07

Based on the constituents of the Nikkei 225 index

UK MARKET WINNERS AND LOSERS

FTSE 100	Nov 29 price(p)	%Chg week	%Chg ytd
Winners			
Airtel Africa	124.20	7.4	-7.0
Glencore	550.80	7.0	45.7
Frasers	899.00	5.5	16.0
Hargreaves Lansdown	850.60	5.2	-
Hsbc Holdings	510.30	4.8	13.9
Anglo American	3289.50	4.8	9.0
Rolls-royce Holdings	89.12	4.5	-
Associated British Foods	1585.00	4.3	-
Standard Chartered	609.00	4.0	35.7
Intermediate Capital	1199.50	3.7	-
Flutter Entertainment	11915.00	3.5	1.8
Rio Tinto	5563.00	3.3	13.7
Losers			
Rs	921.50	-5.1	-
Halma	2128.00	-5.0	-
Kingfisher	240.80	-3.6	-
Vodafone	91.84	-3.3	-
Admiral	2027.00	-2.9	-
Sage	786.00	-2.8	-7.7
Sse	1676.00	-2.8	1.5
Dechra Pharmaceuticals	2674.00	-2.3	-
Ocado	617.00	-2.2	-
Harbour Energy	313.40	-2.2	-
National Grid	1008.50	-2.2	-6.5
Persimmon	1270.00	-2.0	-

FTSE 250	Nov 29 price(p)	%Chg week	%Chg ytd
Winners			
Just	75.20	9.1	-7.6
Vietnam Enterprise Investments	578.00	7.8	-23.7
888 Holdings	103.00	7.1	-
Wizz Air Holdings	2150.00	6.9	-
Telecom Plus	2485.00	6.0	57.2
Britvic	814.50	5.9	-
Tbc Bank	2175.00	5.6	32.4
Johnson Matthey	2137.00	5.1	2.8
Vinacapital Vietnam Opportunity Fund Ld	429.00	5.0	-
Jupiter Fund Management	126.60	4.9	-
Virgin Money Uk	169.70	4.0	-6.8
Tui Ag	144.30	4.0	-
Losers			
Dr. Martens	191.00	-34.7	-
Home Reit	55.80	-27.9	-56.7
Petrofac	84.05	-20.7	-22.5
Wood (john)	134.00	-16.3	-
Pets At Home	264.80	-12.9	-
Syncona	172.80	-10.7	-
Discoverie	785.00	-9.9	-
Molten Ventures	377.80	-9.4	-
Renishaw	3658.00	-8.8	-
Videndum	1188.00	-8.6	-
Babcock Int	283.20	-8.4	-
Lxi Reit	116.40	-7.9	-

FTSE SmallCap	Nov 29 price(p)	%Chg week	%Chg ytd
Winners			
Devro	307.50	61.5	53.1
Augmentum Fintech	103.50	19.2	-
Record	89.40	17.6	6.9
On The Beach	117.80	17.3	-
Trifast	59.80	15.0	-62.8
Nanoco	39.00	11.4	-
Costain	40.20	10.4	-
Hostelworld	101.80	10.1	47.1
Carr's	116.00	9.7	-
Funding Circle Holdings	52.50	9.4	-
Porvair	568.00	9.2	-
Saga	100.20	8.5	-
Losers			
De La Rue	77.40	-22.6	-50.1
Superdry	106.40	-15.3	-
Xp Power	1942.00	-11.5	-
Lsl Property Services	232.00	-10.8	-
Avon Protection	1040.00	-10.2	-9.2
Esken	5.50	-9.8	-
Middlefield Canadian ome Pcc	120.00	-8.7	3.0
Halfords	195.90	-8.3	-
Greencore	65.20	-7.5	-
Hunting	263.00	-6.4	64.4
Civitas Social Housing	60.90	-6.3	-
Capita	24.68	-5.2	-

Industry Sectors	Nov 29 price(p)	%Chg week	%Chg ytd
Winners			
Industrial Metals	7709.90	5.0	21.2
Banks	3275.67	3.8	7.6
Travel & Leisure	6549.82	2.4	-
Aerospace & Defense	4889.48	1.7	17.1
General Retailers	3211.18	1.4	11.3
Food Producers	5723.96	1.3	-
Beverages	28738.27	0.9	-7.5
Oil & Gas Producers	8397.61	0.7	46.6
Real Estate & Investment Servic	2233.29	0.4	-
Construction & Materials	6902.31	0.4	-
Food & Drug Retailers	4133.10	0.3	-5.4
Life Insurance	6587.31	0.3	-
Losers			
Electronic & Electrical Equip.	8969.23	-3.9	-
Personal Goods	33111.45	-3.2	-7.8
Electricity	10251.80	-2.9	1.8
Real Estate Investment Trusts	2297.38	-2.5	-
Automobiles & Parts	1271.19	-2.3	-
Mobile Telecommunications	2337.85	-1.9	-
Gas Water & Multiutilities index	5746.43	-1.7	-3.5
Software & Computer Services	1873.22	-1.4	-
Equity Investment Instruments	11388.95	-1.3	-
General Financial	12759.82	-1.2	10.4
Nonlife Insurance	3196.95	-1.1	-2.6
Support Services	10225.87	-0.9	-

Based on last week's performance. †Price at suspension.

CURRENCIES

Nov 29	Currency	DOLLAR Closing Mid	DOLLAR Day's Change	EURO Closing Mid	EURO Day's Change	POUND Closing Mid	POUND Day's Change
Argentina	Argentine Peso	166.9509	0.3035	172.9021	-0.3694	200.3418	-0.2762
Australia	Australian Dollar	1.4902	-0.0045	1.5433	-0.0108	1.7882	-0.0111
Bahrain	Bahrainin Dinar	0.3771	-	0.3905	-0.0015	0.4525	-0.0014
Bolivia	Bolivian Boliviano	6.9100	-	7.1563	-0.0283	8.2920	-0.0266
Brazil	Brazilian Real	5.2986	-0.0746	5.4875	-0.0993	6.3583	-0.1101
Canada	Canadian Dollar	1.3575	0.0141	1.4058	0.0091	1.6289	0.0118
Chile	Chilean Peso	908.4750	-4.6500	940.8595	-8.5619	1090.1744	-9.0888
China	Chinese Yuan	7.1673	-0.0330	7.4228	-0.0637	8.6008	-0.0673
Colombia	Colombian Peso	4811.9400	-22.8150	4983.4723	-43.4645	5774.3522	-45.9563
Costa Rica	Costa Rican Colon	599.8100	-3.4200	621.1914	-6.0168	719.7749	-6.4220
Czech Republic	Czech Koruna	23.5191	0.1192	24.3574	0.0274	28.2230	0.0531
Denmark	Danish Krone	7.1806	0.0282	7.4366	-0.0001	8.6168	0.0064
Egypt	Egyptian Pound	24.5467	0.0104	25.4217	-0.0899	29.4562	-0.0818
Hong Kong	Hong Kong Dollar	7.8105	-0.0076	8.0889	-0.0399	9.3726	-0.0392
Hungary	Hungarian Forint	394.1969	3.8387	408.2488	2.3740	473.0382	3.1064
India	Indian Rupee	81.7225	0.0550	84.6357	-0.2781	98.0674	-0.2478

Nov 29	Currency	DOLLAR Closing Mid	DOLLAR Day's Change	EURO Closing Mid	EURO Day's Change	POUND Closing Mid	POUND Day's Change
Indonesia	Indonesian Rupiah	15742.5000	20.0000	16303.6921	-43.7899	18891.0928	-36.3997
Israel	Israeli Shekel	3.4351	0.0025	3.5575	-0.0115	4.1221	-0.0102
Japan	Japanese Yen	138.3250	-0.4700	143.2559	-1.0562	165.9907	-1.0974
..One Month		138.3244	-0.4711	143.2556	-1.0566	165.9901	-1.0984
..Three Month		138.3233	-0.4734	143.2551	-1.0577	165.9891	-1.1005
..One Year		138.3179	-0.4842	143.2520	-1.0640	165.9901	-1.1053
Kenya	Kenyan Shilling	122.4500	-	126.8150	-0.5024	146.9406	-0.4705
Kuwait	Kuwaiti Dinar	0.3077	0.0001	0.3186	-0.0012	0.3692	-0.0011
Malaysia	Malaysian Ringgit	4.5085	0.0340	4.6692	0.0169	5.4102	0.0236
Mexico	Mexican Peso	19.2085	-0.0950	19.8932	-0.1776	23.0503	-0.1882
New Zealand	New Zealand Dollar	1.6099	-0.0009	1.6673	-0.0075	1.9319	-0.0073
Nigeria	Nigerian Naira	443.0000	-0.7500	458.7916	-2.5973	531.6022	-2.6052
Norway	Norwegian Krone	9.9720	0.0035	10.3275	-0.0373	11.9664	-0.0341
Pakistan	Pakistani Rupee	224.1000	0.6000	232.0885	-0.2956	268.9211	-0.1388
Peru	Peruvian Nuevo Sol	3.8446	-0.0107	3.9816	-0.0269	4.6135	-0.0277
Philippines	Philippine Peso	56.5600	-0.0900	58.5762	-0.3256	67.8723	-0.3257

Nov 29	Currency	DOLLAR Closing Mid	DOLLAR Day's Change	EURO Closing Mid	EURO Day's Change	POUND Closing Mid	POUND Day's Change
Poland	Polish Zloty	4.5180	0.0237	4.6790	0.0061	5.4216	0.0112
Romania	Romanian Leu	4.7491	0.0133	4.9184	-0.0057	5.6990	-0.0022
Russia	Russian Ruble	61.3000	0.2000	63.4852	-0.0435	73.5603	0.0052
Saudi Arabia	Saudi Riyal	3.7583	0.0005	3.8922	-0.0149	4.5099	-0.0138
Singapore	Singapore Dollar	1.3738	-0.0024	1.4228	-0.0081	1.6486	-0.0082
South Africa	South African Rand	16.9763	-0.1450	17.5814	-0.2204	20.3716	-0.2398
South Korea	South Korean Won	1326.7500	-13.5000	1374.0446	-19.4799	1592.1065	-21.3503
Sweden	Swedish Krona	10.5437	0.0610	10.9195	0.0201	12.6524	0.0329
Switzerland	Swiss Franc	0.9514	0.0063	0.9853	0.0026	1.1416	0.0039
Taiwan	New Taiwan Dollar	30.9585	-0.0550	32.0621	-0.1842	37.1503	-0.1852
Thailand	Thai Baht	35.4275	-0.1388	36.6904	-0.2896	42.5132	-0.3032
Tunisia	Tunisian Dinar	3.2335	0.0040	3.3487	-0.0092	3.8802	-0.0077
Turkey	Turkish Lira	18.6380	0.0139	19.3024	-0.0620	22.3657	-0.0548
United Arab Emirates	UAE Dirham	3.6730	0.0000	3.8039	-0.0151	4.4076	-0.0142
United Kingdom	Pound Sterling	0.8333	0.0027	0.8630	-0.0007	-	-
..One Month		0.8335	0.0027	0.8629	-0.0007	-	-

Nov 29	Currency	DOLLAR Closing Mid	DOLLAR Day's Change	EURO Closing Mid	EURO Day's Change	POUND Closing Mid	POUND Day's Change
..Three Month		0.8337	0.0026	0.8627	-0.0007	-	-
..One Year		0.8342	0.0027	0.8615	-0.0007	-	-
United States	United States Dollar	-	-	1.0356	-0.0041	1.2000	-0.0038
..One Month		-	-	1.0353	-0.1683	1.2002	-0.0038
..Three Month		-	-	1.0349	-0.1682	1.2003	-0.0039
..One Year		-	-	1.0330	-0.1682	1.2009	-0.0038
Vietnam	Vietnamese Dong	24760.0000	-27.5000	25642.6694	-130.1279	29712.1193	-128.2942
European Union	Euro	0.9656	0.0038	-	-	1.1587	0.0009
..One Month		0.9653	0.0037	-	-	1.1586	0.0008
..Three Month		0.9649	0.0038	-	-	1.1583	0.0009
..One Year		0.9629	0.0038	-	-	1.1572	0.0008

Rates are derived from WM Reuters Spot Rates and MorningStar (latest rates at time of production). Some values are rounded. Currency redenominated by 1000. The exchange rates printed in this table are also available at www.FT.com/marketsdata

FTSE ACTUARIES SHARE INDICES
UK SERIES www.ft.com/equities

Produced in conjunction with the Institute and Faculty of Actuaries

	£ Strlg Nov 29	Day's chge%	Euro Index	£ Strlg Nov 28	£ Strlg Nov 25	Year ago	Div yield%	Cover	P/E ratio	X/D adj	Total Return
FTSE 100 (100)	7512.00	0.51	6780.94	7474.02	7486.67	7109.95	3.62	1.63	16.99	264.38	7710.47
FTSE 250 (250)	19186.16	-0.55	17318.99	19292.35	19545.70	22756.33	3.12	0.74	43.17	511.59	15940.14
FTSE 250 ex Inv Co (173)	19710.49	-0.60	17792.30	19829.36	20125.03	23482.55	3.22	1.27	24.35	538.48	16705.47
FTSE 350 (350)	4152.78	0.35	3748.63	4138.23	4152.24	4076.21	3.55	1.51	18.65	140.90	8457.05
FTSE 350 ex Investment Trusts (270)	4092.47	0.39	3694.20	4076.38	4089.31	3964.19	3.60	1.68	16.54	141.20	4307.32
FTSE 350 Higher Yield (132)	3579.66	0.97	3231.29	3545.30	3563.28	3201.90	4.98	1.74	11.56	162.26	8224.48
FTSE 350 Lower Yield (218)	4301.19	-0.29	3882.60	4313.53	4320.63	4718.98	2.05	0.94	51.98	90.49	5294.24
FTSE SmallCap (236)	6211.34	-0.23	5606.86	6225.92	6243.19	7261.96	3.45	0.13	222.56	195.73	10433.51
FTSE SmallCap ex Inv Co (126)	4996.82	-0.56	4510.54	5024.72	5045.54	6009.89	3.61	2.35	11.78	148.53	8721.73
FTSE All-Share (586)	4112.30	0.34	3712.09	4098.49	4112.31	4057.63	3.54	1.48	19.09	139.24	8456.58
FTSE All-Share ex Inv Co (396)	4018.01	0.38	3626.99	4002.74	4015.49	3905.35	3.60	1.69	16.45	138.36	4293.63
FTSE All-Share ex Multinationals (523)	1081.84	-0.30	810.58	1085.07	1097.14	1308.74	3.90	0.90	28.59	38.78	2301.64
FTSE Fledgling (82)	11583.48	0.36	10456.19	11541.58	11517.54	13199.91	3.75	4.25	6.28	347.88	25079.34
FTSE Fledgling ex Inv Co (32)	15144.38	1.03	13670.56	14989.62	14954.17	17502.50	3.44	7.26	4.00	448.06	31838.91
FTSE All-Small (318)	4331.92	-0.20	3910.35	4340.66	4351.55	5057.72	3.46	0.38	76.63	136.20	9333.25
FTSE All-Small ex Inv Co (158)	3759.88	-0.50	3393.98	3778.69	3793.45	4515.65	3.60	2.52	11.00	111.76	8311.76
FTSE AIM All-Share (757)	844.22	-0.79	762.06	850.92	847.07	1190.51	1.63	1.78	34.50	12.68	991.74
FTSE All-Share Technology (21)	2000.66	-1.65	1650.18	2034.12	2046.33	2314.90	1.92	0.89	58.54	39.63	2897.90
FTSE All-Share Telecommunications (6)	1523.38	-0.86	1256.52	1536.63	1548.17	1813.75	6.95	1.03	13.97	98.30	2327.95
FTSE All-Share Health Care (14)	14334.64	0.25	11823.50	14299.33	14232.94	12671.54	2.62	1.05	36.38	374.42	13276.65
FTSE All-Share Financials (254)	4559.70	1.17	3760.93	4506.99	4547.53	4780.01	3.70	1.04	26.06	161.32	5069.40
FTSE All-Share Real Estate (55)	841.19	-0.38	725.83	844.38	855.15	1210.36	4.16	3.69	6.52	32.01	885.46
FTSE All-Share Consumer Discretionary (84)	4575.10	-0.60	3773.63	4602.84	4622.96	5240.20	2.35	1.19	35.75	102.72	4847.83
FTSE All-Share Consumer Staples (24)	19700.83	-0.47	16249.64	19793.38	19700.75	19094.20	3.87	1.13	22.77	692.42	18064.51
FTSE All-Share Industrials (83)	6301.93	-1.16	5197.96	6376.04	6415.72	7148.42	2.28	1.30	33.78	135.18	7295.14
FTSE All-Share Basic Materials (22)	9194.54	2.55	7583.84	8965.58	8970.21	7779.59	5.91	2.00	8.46	536.92	12531.79
FTSE All-Share Energy (13)	8682.95	1.62	7161.87	8544.36	8591.62	5852.48	3.46	2.74	10.53	302.44	10564.66
FTSE All-Share Utilities (10)	8517.54	-1.13	7025.44	8615.19	8689.04	8335.89	4.51	0.56	39.40	361.80	12969.98
FTSE All-Share Software and Computer Services (18)	2159.50	-1.65	1781.20	2195.71	2207.79	2489.70	1.92	0.88	59.08	43.04	3309.61
FTSE All-Share Technology Hardware and Equipment (3)	5028.47	-1.54	4147.58	5106.89	5203.07	6423.63	1.76	1.19	47.46	78.21	6498.88
FTSE All-Share Telecommunications Equipment (1)	629.04	-1.68	518.84	639.77	632.17	624.48	1.95	2.31	22.16	11.51	899.15
FTSE All-Share Telecommunications Service Providers (5)	2334.31	-0.82	1925.38	2353.67	2373.55	2798.81	7.19	1.01	13.73	155.61	3251.14
FTSE All-Share Health Care Providers (3)	11024.93	0.46	9093.58	10974.48	11046.72	7883.57	0.53	4.88	38.74	58.27	10232.92
FTSE All-Share Medical Equipment and Services (2)	5443.26	-0.45	4489.71	5467.67	5553.07	5802.99	2.62	0.97	39.50	142.76	5257.98
FTSE All-Share Pharmaceuticals and Biotechnology (9)	20502.38	0.28	16910.77	20444.72	20324.83	17963.82	2.64	1.04	36.20	539.80	17098.78
FTSE All-Share Banks (12)	3231.88	3.27	2665.72	3129.45	3155.43	2848.47	4.03	2.61	9.53	128.47	2860.07
FTSE All-Share Finance and Credit Services (8)	10952.23	-0.93	9033.61	11055.15	11047.03	9819.68	1.90	2.05	25.59	208.86	14715.91
FTSE All-Share Investment Banking and Brokerage Services (31)	8604.59	-0.55	7097.23	8652.61	8766.28	10331.87	5.13	1.53	12.79	387.97	12084.73
FTSE All-Share Closed End Investments (190)	11688.96	-0.33	9641.29	11727.85	11799.74	14260.95	2.68	-2.76	-13.51	291.14	7318.55
FTSE All-Share Life Insurance (6)	6705.16	1.37	5530.55	6614.83	6714.57	7614.39	4.57	1.08	20.25	294.59	8205.42
FTSE All-Share Nonlife Insurance (7)	3597.52	0.19	2967.30	3590.87	3669.85	3556.82	3.98	1.24	20.27	130.27	7661.41
FTSE All-Share Real Estate Investment and Services (10)	2126.59	-0.53	1754.05	2137.92	2152.50	2984.59	2.37	4.11	10.27	41.03	6341.11
FTSE All-Share Real Estate Investment Trusts (45)	2090.55	-0.35	1724.33	2097.89	2126.90	3017.30	4.48	3.65	6.11	87.45	3172.30
FTSE All-Share Automobiles and Parts (2)	1277.70	-2.26	1053.87	1307.21	1334.83	3677.09	0.76	-53.35	-2.46	14.02	1329.24
FTSE All-Share Consumer Services (2)	3014.43	-0.89	2486.37	3041.57	3031.90	2526.26	1.27	2.58	30.53	38.43	3823.80
FTSE All-Share Household Goods and Home Construction (12)	8410.43	-0.29	6937.09	8435.01	8602.40	13942.69	8.85	1.60	7.05	665.58	7528.05
FTSE All-Share Leisure Goods (2)	19947.19	-1.35	16452.84	20219.15	20460.67	24136.45	3.39	1.59	18.53	831.45	22292.57
FTSE All-Share Personal Goods (4)	28468.31	1.19	23481.23	28134.29	28628.02	30375.10	1.82	2.94	18.73	402.68	22266.64
FTSE All-Share Media (11)	9461.70	-1.12	7804.20	9568.62	9563.68	9658.60	2.34	1.45	29.40	221.42	6657.27
FTSE All-Share Retailers (22)	1910.21	-0.19	1575.58	1913.80	1933.11	2764.72	2.65	3.59	10.50	47.84	2484.47
FTSE All-Share Travel and Leisure (29)	6394.41	-0.46	5274.24	6423.78	6441.10	7035.95	0.64	-8.42	-18.59	40.81	6613.71
FTSE All-Share Beverages (5)	28845.98	-0.40	23792.74	28963.16	28812.71	29579.51	2.08	2.00	24.04	584.47	23117.67
FTSE All-Share Food Producers (10)	5919.15	-0.80	4882.23	5966.81	5990.28	6618.36	2.33	2.55	16.83	95.89	5710.92
FTSE All-Share Tobacco (2)	36426.17	-0.26	30045.03	36519.47	36479.92	27570.28	6.51	0.87	17.68	1906.82	34212.13
FTSE All-Share Construction and Materials (15)	7327.62	-0.06	6043.97	7332.38	7368.48	8513.45	3.15	0.64	49.25	230.56	8941.17
FTSE All-Share Aerospace and Defense (7)	5132.55	-0.20	4233.43	5142.88	5154.36	4387.21	2.30	0.11	395.75	104.10	6260.13
FTSE All-Share Electronic and Electrical Equipment (10)	10538.11	-4.07	8692.05	10985.50	11102.71	13722.43	1.66	2.11	28.42	159.06	10420.32
FTSE All-Share General Industrials (8)	5024.51	-0.17	4144.32	5032.90	5092.33	5433.26	2.85	1.16	30.25	142.00	6636.56
FTSE All-Share Industrial Engineering (5)	16216.93	-0.42	13376.05	16286.05	16403.13	19798.95	1.61	2.01	30.88	261.52	21783.73
FTSE All-Share Industrial Support Services (30)	9836.51	-1.70	8113.35	10006.20	10063.19	11800.81	1.95	1.67	30.69	193.76	11326.16
FTSE All-Share Industrial Transportation (8)	5493.67	-1.84	4531.29	5596.53	5608.85	6976.85	2.12	2.82	16.68	98.14	5755.92
FTSE All-Share Industrial Materials (1)	16002.99	1.27	501.45	15802.95	15902.97	21203.96	2.06	1.81	26.90	329.06	20214.16
FTSE All-Share Industrial Metals and Mining (9)	8302.12	3.05	6847.75	8056.10	8058.22	6391.86	6.29	2.01	7.90	517.27	12743.52
FTSE All-Share Precious Metals and Mining (5)	10150.88	-0.16	8372.65	10167.28	10206.82	19481.21	3.52	1.83	15.53	358.99	7156.72
FTSE All-Share Chemicals (7)	13148.96	-1.63	10845.53	13367.16	13391.85	18506.69	2.70	1.79	20.62	324.25	13178.49
FTSE All-Share Oil, Gas and Coal (12)	8429.14	1.62	6952.52	8294.57	8340.46	5679.77	3.46	2.74	10.53	293.60	10636.20
FTSE Sector Indices											
Non Financials (332)	**5033.48**	**0.10**	**4543.63**	**5028.31**	**5037.31**	**4879.40**	**3.50**	**1.61**	**17.74**	**168.33**	**9108.54**

Hourly movements	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	High/day	Low/day
FTSE 100	7506.26	7521.23	7515.46	7521.22	7535.24	7533.05	7522.94	7528.60	7531.23	7542.75	7504.99
FTSE 250	19314.84	19278.37	19276.65	19315.02	19295.00	19282.48	19268.55	19239.66	19245.04	19363.19	19186.16
FTSE SmallCap	6231.93	6227.63	6225.60	6233.03	6230.67	6231.24	6225.42	6222.90	6224.14	6234.66	6211.34
FTSE All-Share	4113.97	4119.60	4116.88	4120.81	4126.54	4125.17	4120.04	4121.69	4123.07	4131.93	4112.23

Time of FTSE 100 Day's high:08:41:15 Day's Low09:47:30 FTSE 100 2010/11 High: 7672.40(10/02/2022) Low: 6826.15(12/10/2022)
Time of FTSE All-Share Day's high:08:41:00 Day's Low09:48:00 FTSE 100 2010/11 High: 4296.96(10/02/2022) Low: 3712.50(12/10/2022)

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FT 30 INDEX

	Nov 29	Nov 28	Nov 25	Nov 24	Nov 23	Yr Ago	High	Low
FT 30	2507.60	2515.20	2533.50	2528.70	2515.50	0.00	2880.10	2152.10
FT 30 Div Yield	-	-	-	-	-	0.00	3.93	2.74
P/E Ratio net	-	-	-	-	-	0.00	19.44	14.26

FT 30 hourly changes

8	9	10	11	12	13	14	15	16	High	Low
2515.2	2512.6	2510.7	2517.5	2521	2520	2517.1	2517.3	2519.3	2528.2	2507.6

FT30 constituents and recent additions/deletions can be found at www.ft.com/ft30

FT WILSHIRE 5000 INDEX SERIES

	Nov 28		Nov 28
FT Wilshire 5000	40185.42	FT Wilshire Mid Cap	5452.63
FT Wilshire 2500	5146.28	FT Wilshire Small Cap	4916.64
FT Wilshire Mega Cap	5120.18	FT Wilshire Micro Cap	4747.43
FT Wilshire Large Cap	5175.55		

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FTSE SECTORS: LEADERS & LAGGARDS

Year to date percentage changes

Oil & Gas Producers	47.18	Gas Water & Multi	-3.49	FTSE 250 Index	-18.29
Oil & Gas	46.40	Health Care Eq & Srv	-4.22	Support Services	-18.62
Tobacco	24.37	Beverages	-7.59	Construct & Material	-18.76
Mining	20.52	Media	-8.10	Telecommunications	-18.77
Aerospace & Defense	16.19	Travel & Leisure	-8.16	Fixed Line Telecomms	-20.61
Basic Materials	11.98	Nonlife Insurance	-8.76	Industrial Eng	-20.75
Pharmace & Biotech	9.60	Software & Comp Serv	-9.34	Leisure Goods	-21.44
Health Care	8.66	Technology	-9.46	Oil Equipment & Serv	-21.62
Banks	7.38	Tech Hardware & Eq	-10.46	Household Goods & Ho	-25.14
Personal Goods	3.06	Financials	-10.88	Chemicals	-28.60
FTSE 100 Index	1.73	Financial Services	-11.57	Electronic & Elec Eq	-28.76
Electricity	1.63	Life Insurance	-13.81	Food & Drug Retailer	-30.21
Beverages	31.66	Food Producers	-14.38	General Retailers	-30.86
NON FINANCIALS Index	-0.75	Industrials	-14.89	Real Est Invest & Tr	-32.41
Utilities	-2.21	Consumer Services	-15.61	Real Est Invest & Se	-32.49
FTSE All{HY-}Share Index	-2.27	FTSE SmallCap Index	-16.73	Industrial Transport	-40.09
Consumer Goods	-2.55	Equity Invest Instr	-18.02	Automobiles & Parts	-64.96
		Mobile Telecomms	-18.17	Industrial Metals &	-79.30

FTSE 100 SUMMARY

FTSE 100	Closing Price	Day's Change	FTSE 100	Closing Price	Day's Change
3I Group PLC	1340.5	-2.50	International Consolidated Airlines Group S.A.	133.62	-0.68
Admiral Group PLC	2027	-7.00	Intertek Group PLC	3944	-98.00
Airtel Africa PLC	124.20	3.40	Jd Sports Fashion PLC	124.45	-0.05
Anglo American PLC	3289.5	116.00	Kingfisher PLC	240.80	-2.00
Antofagasta PLC	1364	36.50	Land Securities Group PLC	620.60	-2.20
Ashtead Group PLC	4991	-99.00	Legal & General Group PLC	254.40	-2.30
Associated British Foods PLC	1585	9.50	Lloyds Banking Group PLC	46.33	0.51
Astrazeneca PLC	11060	10.00	London Stock Exchange Group PLC	8044	-94.00
Auto Trader Group PLC	564.80	-6.60	M&G PLC	192.25	-0.45
Aveva Group PLC	3176	1.00	Melrose Industries PLC	131.45	1.50
Aviva PLC	448.60	-0.60	Mondi PLC	1556	5.00
B&M European Value Retail S.A.	410.70	0.90	National Grid PLC	1008.5	-7.50
Bae Systems PLC	810.40	-1.20	Natwest Group PLC	260.50	5.90
Barclays PLC	161.00	2.82	Next PLC	5740	34.00
Barratt Developments PLC	398.10	-1.80	Ocado Group PLC	617.00	-16.80
Berkeley Group Holdings (The) PLC	3783	9.00	Pearson PLC	984.00	-6.20
BP PLC	492.05	8.50	Pershing Square Holdings LTD	2935	-20.00
British American Tobacco PLC	3350.5	-7.50	Persimmon PLC	1270	-9.50
British Land Company PLC	404.70	0.40	Phoenix Group Holdings PLC	596.00	-8.20
Bt Group PLC	122.85	-0.95	Prudential PLC	964.80	36.40
Bunzl PLC	3066	-12.00	Reckitt Benckiser Group PLC	5940	-28.00
Burberry Group PLC	2140	29.00	Relx PLC	2290	-47.00
Centrica PLC	94.82	-	Rentokil Initial PLC	535.60	-13.60
Coca-Cola Hbc AG	2018	-7.00	Rightmove PLC	551.60	-7.40
Compass Group PLC	1830.5	-16.50	Rio Tinto PLC	5563	200.00
Convatec Group PLC	228.80	-0.40	Rolls-Royce Holdings PLC	89.12	0.50
Crh PLC	3318	-5.00	Rs Group PLC	921.50	-9.50
Croda International PLC	6712	-192.00	Sage Group PLC	786.00	-30.00
Dcc PLC	4475	65.00	Sainsbury (J) PLC	223.10	-0.60
Dechra Pharmaceuticals PLC	2674	-64.00	Schroders PLC	450.80	-6.80
Diageo PLC	3768	-18.00	Scottish Mortgage Investment Trust PLC	760.20	-3.40
Endeavour Mining PLC	1687	1.00	Segro PLC	808.40	-7.80
Entain PLC	1397.5	0.50	Severn Trent PLC	2714	-63.00
Experian PLC	2869	-77.00	Shell PLC	2400.5	40.00
F&C Investment Trust PLC	918.00	-3.00	Smith & Nephew PLC	1078	-6.00
Flutter Entertainment PLC	11915	-30.00	Smith (Ds) PLC	304.20	-1.70
Frasers Group PLC	899.00	5.00	Smiths Group PLC	1596	-15.00
Fresnillo PLC	883.80	1.20	Smurfit Kappa Group PLC	3003	-13.00
Glaxosmithkline PLC	1417.8	23.00	Spirax-Sarco Engineering PLC	11210	-115.00
Glencore PLC	550.80	12.50	Sse PLC	1676	-22.00
Haleon PLC	285.35	-2.95	St. James's Place PLC	1153.5	-9.00
Halma PLC	2128	-143.00	Standard Chartered PLC	609.00	29.20
Harbour Energy PLC	313.40	2.40	Taylor Wimpey PLC	102.10	0.05
Hargreaves Lansdown PLC	850.60	-5.40	Tesco PLC	233.00	0.40
Homeserve PLC	1191	-	Unilever PLC	4124.5	-30.50
HSBC Holdings PLC	510.30	21.70	Unite Group PLC	946.50	-5.50
Imperial Brands PLC	2123	-8.00	United Utilities Group PLC	1026	-24.50
Informa PLC	610.40	3.20	Vodafone Group PLC	91.84	-0.97
Intercontinental Hotels Group PLC	4745	-7.00	Whitbread PLC	2586	-12.00
Intermediate Capital Group PLC	1199.5	-3.00	Wpp PLC	868.40	-4.00

FTSE GLOBAL EQUITY INDEX SERIES

Nov 29 Regions & countries	No of stocks	US $ indices	Day %	Mth %	YTD %	Total retn	YTD %	Gr Div Yield	Nov 29 Sectors	No of stocks	US $ indices	Day %	Mth %	YTD %	Total retn	YTD %	Gr Div Yield
FTSE Global All Cap	9515	692.80	-1.3	4.8	-18.2	1110.22	-16.5	2.3	Oil Equipment & Services	24	284.60	-1.3	4.2	21.6	527.41	26.4	4.1
FTSE Global All Cap	9515	692.80	-1.3	4.8	-18.2	1110.22	-16.5	2.3	Basic Materials	393	598.36	-1.5	10.8	-11.0	1101.90	-7.2	4.8
FTSE Global Large Cap	1906	619.56	-1.2	4.9	-18.4	1023.48	-16.7	2.3	Chemicals	195	808.52	-1.6	8.1	-16.5	1429.68	-14.2	3.0
FTSE Global Mid Cap	2261	896.15	-1.5	5.0	-16.5	1350.84	-14.8	2.3	Forestry & Paper	20	253.34	-1.4	4.6	-17.0	511.51	-14.3	3.9
FTSE Global Small Cap	5348	921.34	-1.6	3.9	-19.5	1327.70	-18.0	2.1	Industrial Metals & Mining	98	483.73	-1.6	13.5	-12.6	926.91	-7.9	7.6
FTSE All-World	4167	407.16	-1.3	4.9	-18.1	691.01	-16.3	2.3	Mining	80	938.76	-1.5	14.3	0.9	1830.71	7.1	6.1
FTSE World	2662	740.81	-1.3	4.7	-17.5	1687.16	-15.8	2.3	Industrials	803	497.11	-1.4	7.3	-17.2	793.29	-15.6	2.1
FTSE Global All Cap ex UNITED KINGDOM In	9225	731.31	-1.3	4.6	-18.4	1149.41	-16.8	2.3	Construction & Materials	154	568.74	-1.4	9.1	-23.0	957.80	-21.4	2.2
FTSE Global All Cap ex USA	7706	487.79	-0.9	10.4	-18.7	867.48	-16.2	3.3	Aerospace & Defense	35	876.69	-1.7	2.4	9.1	1368.59	10.8	1.5
FTSE Global All Cap ex JAPAN	8110	722.41	-1.4	4.4	-18.3	1167.91	-16.6	2.3	General Industrials	76	240.41	-1.8	9.0	-13.4	425.12	-11.2	2.5
FTSE Global All Cap ex Eurozone	8852	733.27	-1.3	4.2	-18.1	1149.49	-16.4	2.2	Electronic & Electrical Equipment	157	627.25	-1.3	9.8	-22.0	901.66	-20.8	1.5
FTSE Developed	2178	680.29	-1.3	4.5	-17.5	1097.47	-15.9	2.2	Industrial Engineering	158	996.13	-1.4	9.9	-13.9	1583.87	-12.2	1.9
FTSE Developed All Cap	5827	708.81	-1.4	4.4	-17.7	1126.57	-16.1	2.1	Industrial Transportation	133	920.17	-1.0	8.7	-17.2	1497.43	-14.5	3.5
FTSE Developed Large Cap	834	637.80	-1.2	4.4	-17.7	1047.30	-16.1	2.2	Support Services	90	526.81	-1.2	3.1	-25.8	783.98	-24.9	1.5
FTSE Developed Europe Large Cap	220	379.80	-0.6	11.1	-15.5	752.80	-12.8	3.2	Consumer Goods	569	551.79	-0.3	4.9	-19.9	927.71	-18.3	2.4
FTSE Developed Europe Mid Cap	355	568.48	-1.4	12.2	-26.3	977.81	-24.2	3.0	Automobiles & Parts	132	503.32	-0.6	-3.3	-34.9	814.18	-33.9	2.0
FTSE Dev Europe Small Cap	746	799.80	-1.4	11.5	-27.6	1321.15	-25.6	3.2	Beverages	72	773.28	0.0	5.8	-4.1	1312.47	-2.3	2.2
FTSE North America Large Cap	234	851.25	-1.5	1.5	-18.4	1278.89	-17.2	1.7	Food Producers	134	727.15	-0.3	6.0	-7.4	1254.13	-5.3	2.4
FTSE North America Mid Cap	421	1118.79	-1.8	2.4	-14.4	1554.09	-13.1	1.8	Household Goods & Home Construction	65	525.91	-0.3	8.5	-19.6	886.70	-17.5	2.7
FTSE North America Small Cap	1334	1099.03	-2.0	1.2	-16.7	1463.41	-15.6	1.6	Leisure Goods	53	235.29	-0.5	8.3	-26.1	332.71	-25.2	1.4
FTSE North America	655	558.00	-1.5	1.6	-17.6	857.05	-16.4	1.7	Personal Goods	98	891.76	-0.2	11.9	-22.7	1372.35	-21.5	1.9
FTSE Developed ex North America	1523	260.67	-0.8	11.5	-17.3	499.23	-14.8	3.1	Tobacco	15	989.13	-0.2	4.0	2.9	2800.72	7.7	6.1
FTSE Japan Large Cap	169	375.96	-0.3	12.3	-17.5	552.70	-15.5	2.5	Health Care	343	723.70	-0.5	4.0	-8.3	1153.69	-6.8	1.7
FTSE Japan Mid Cap	340	527.36	-0.3	10.9	-14.1	736.20	-11.9	2.6	Health Care Equipment & Services	133	1365.90	-1.3	2.1	-17.9	1674.98	-17.2	1.0
FTSE Global wi JAPAN Small Cap	896	588.90	-0.2	11.8	-15.3	853.63	-13.0	2.7	Pharmaceuticals & Biotechnology	210	492.76	0.1	5.3	-0.9	844.93	1.4	2.2
FTSE Japan	509	154.65	-0.3	12.0	-16.8	254.56	-14.8	2.5	Consumer Services	427	529.36	-0.6	3.6	-24.9	755.72	-24.1	1.2
FTSE Asia Pacific Large Cap ex Japan	1087	648.87	-1.2	12.6	-22.2	1183.17	-19.9	3.3	Food & Drug Retailers	69	325.30	-0.6	7.0	-5.5	517.49	-3.4	2.3
FTSE Asia Pacific Mid Cap ex Japan	867	935.84	-0.6	10.7	-17.4	1644.91	-14.9	3.5	General Retailers	141	924.37	-0.5	2.9	-27.7	1262.81	-27.1	1.0
FTSE Asia Pacific Small Cap ex Japan	2115	528.99	-0.7	10.2	-27.3	903.05	-25.3	3.2	Media	75	299.96	-1.4	1.4	-36.1	431.14	-35.4	1.3
FTSE Asia Pacific Ex Japan	1954	517.52	-1.2	12.4	-21.7	1002.89	-19.4	3.3	Travel & Leisure	142	446.50	-0.4	5.5	-13.0	651.74	-12.0	1.1
FTSE Emerging All Cap	3688	683.74	-0.8	9.2	-22.4	1192.93	-19.7	3.9	Telecommunication	89	131.15	-1.1	3.1	-11.5	309.22	-8.1	4.3
FTSE Emerging Large Cap	1072	628.07	-1.0	9.7	-23.7	1102.16	-21.1	3.9	Fixed Line Telecommuniations	31	102.44	-1.2	2.7	-9.1	277.18	-4.9	5.1
FTSE Emerging Mid Cap	917	1007.58	-0.3	7.0	-12.3	1768.19	-9.2	4.0	Mobile Telecommunications	58	155.02	-1.0	3.4	-12.8	315.06	-9.8	3.8
FTSE Emerging Small Cap	1699	747.01	-0.1	7.7	-22.9	1246.54	-20.4	3.4	Utilities	200	318.28	-1.0	5.8	-7.3	744.95	-4.4	3.3
FTSE Emerging Europe	111	119.45	0.2	18.1	-71.2	249.89	-70.0	2.8	Electricity	142	359.83	-1.1	4.3	-6.7	828.97	-4.0	3.2
FTSE Latin America All Cap	262	700.26	-0.7	-3.5	-1.2	1386.96	7.3	11.7	Gas Water & Multiutilities	58	314.99	-0.9	9.5	-8.7	764.02	-5.5	3.6
FTSE Middle East and Africa All Cap	329	746.49	-1.2	0.4	-6.3	1367.18	-3.5	3.3	Financials	853	261.09	-1.6	6.1	-13.0	501.95	-10.4	3.2
FTSE Global wi UNITED KINGDOM All Cap In	290	315.94	-0.8	10.5	-12.2	646.42	-9.1	3.6	Banks	270	200.01	-1.5	5.5	-11.6	428.81	-8.2	4.1
FTSE Global wi USA All Cap	1809	957.15	-1.6	1.4	-17.9	1386.07	-16.7	1.6	Nonlife Insurance	71	360.71	-1.0	6.8	2.9	601.97	5.8	2.8
FTSE Europe All Cap	1461	429.86	-0.8	11.4	-19.7	817.89	-17.2	3.1	Life Insurance	51	214.59	-1.9	11.4	-11.2	414.06	-7.7	4.0
FTSE Eurozone All Cap	663	415.05	-0.9	12.4	-19.9	783.68	-17.5	3.1	Financial Services	211	434.06	-1.6	5.7	-13.0	659.09	-11.6	1.7
FTSE EDHEC-Risk Efficient All-World	4167	467.94	-1.3	5.3	-14.3	736.94	-12.3	2.7	Technology	360	460.77	-2.0	3.5	-32.1	601.47	-31.5	1.1
FTSE EDHEC-Risk Efficient Developed Europe	575	313.49	-1.1	11.9	-24.1	551.50	-21.9	3.2	Software & Computer Services	184	687.18	-1.6	2.8	-35.8	831.53	-35.4	0.7
Oil & Gas	130	416.31	-2.0	1.6	27.0	854.49	33.1	4.6	Technology Hardware & Equipment	176	413.74	-2.4	4.2	-27.8	581.12	-26.8	1.6
Oil & Gas Producers	86	414.50	-2.1	0.8	30.5	874.14	37.3	4.9	Alternative Energy	20	186.97	-2.3	10.5	-10.3	268.29	-9.9	0.4
									Real Estate Investment & Services	142	248.77	-1.6	11.7	-24.4	484.99	-22.2	3.2
									Real Estate Investment Trusts	108	440.88	-2.2	4.0	-26.1	1030.64	-24.0	3.8
									FTSE Global Large Cap	1906	619.56	-1.2	4.9	-18.4	1023.48	-16.7	2.3

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UK STOCK MARKET TRADING DATA

	Nov 29	Nov 28	Nov 25	Nov 24	Nov 23	Yr Ago
Order Book Turnover (m)	324.43	47.06	47.06	47.06	83.80	360.52
Order Book Bargains	685355.00	491480.00	491480.00	491480.00	485815.00	622233.00
Order Book Shares Traded (m)	1248.00	1069.00	1069.00	1069.00	966.00	1236.00
Total Equity Turnover (£m)	7219.48	4258.00	4258.00	4258.00	3884.42	5457.09
Total Mkt Bargains	865191.00	638327.00	638327.00	638327.00	646671.00	792155.00
Total Shares Traded (m)	5322.00	6459.00	6459.00	6459.00	6236.00	7760.00

† Excluding intra-market and overseas turnover. *UK only total at 6pm. ‡ UK plus intra-market turnover. (u) Unavaliable. (c) Market closed.

All data provided by Morningstar unless otherwise noted. All elements listed are indicative and believed accurate at the time of publication. No offer is made by Morningstar or the FT. The FT does not warrant nor guarantee that the information is reliable or complete. The FT does not accept responsibility and will not be liable for any loss arising from the reliance on or use of the listed information.
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UK RIGHTS OFFERS

Issue price	Amount paid up	Latest renun. date	High	Low	Stock	closing Price p	+or-

There are currently no rights offers by any companies listed on the LSE.

UK COMPANY RESULTS

Company		Turnover		Pre-tax		EPS(p)		Div(p)		Pay day	Total	
ActiveOps	Int	12.291	11.451	0.606L	0.991L	0.990L	1.400L	0.00000	0.00000	-	0.000	0.000
Altitude Group	Int	7.666	5.928	0.133L	0.414L	0.100L	0.420L	0.00000	0.00000	-	0.000	0.000
Amigo Holdings	Int	16.100	56.600	12.700L	2.100	2.700L	0.700	0.00000	0.00000	-	0.000	0.000
Citius Resources	Int	0.000	0.000	0.137L	0.147L	0.440L	0.460L	0.00000	0.00000	-	0.000	0.000
Craven House Capital	Pre	0.000	0.000	0.236L	2.431L	0.061L	0.629L	0.00000	0.00000	-	0.000	0.000
easyJet	Pre	5769.000	1458.000	208.000L	1036.000L	22.400L	159.000L	0.00000	0.00000	-	0.000	0.000
First Property Group	Int	4.188	4.033	2.392	6.665	1.860	5.850	0.25000	0.25000	Dec 30	0.500	0.250
GB Group	Int	133.816	109.154	0.024L	14.385	0.300L	5.700	0.00000	0.00000	-	3.810	3.400
PipeHawk	Pre	6.191	6.665	1.576L	0.079	2.420L	1.500	0.00000	0.00000	-	0.000	0.000
Record	Int	22.059	16.333	7.544	5.154	3.270	2.080	2.05000	1.80000	Dec 30	3.850	2.950
Renew Holdings	Pre	816.276	775.639	49.455	40.752	47.780	38.730	0.00000	11.17000	-	5.670	16.000
Shaftesbury	Pre	123.100	112.700	119.100	194.900L	31.000	52.000L	0.00000	4.00000	-	4.800	6.400
Shearwater Group	Int	10.790	10.576	1.625L	0.518L	6.000L	2.000L	0.00000	0.00000	-	0.000	0.000
Supreme	Int	64.636	61.082	4.398	8.477	2.800	5.800	0.00000	2.20000	-	3.800	2.200

Figures in £m. Earnings shown basic. Figures in light text are for corresponding period year earlier.
For more information on dividend payments visit www.ft.com/marketsdata

UK RECENT EQUITY ISSUES

Issue date	Issue price(p)	Sector	Stock code	Stock	Close price(p)	+/-	High	Low	Mkt Cap (£m)
11/09	250.00		ITH	Ithaca Energy PLC	186.10	-11.00	254.90	182.70	187060.7
10/31	4.00		BWN	Bowen Fintech PLC	6.25	0.25	6.00	5.90	343.8
10/27	10.00		UMR	Unicorn Mineral Resource PLC	18.50	0.00	19.50	10.00	513.5
10/24	1.00		ATN	Eastinco Mining and Exploration PLC	0.95	0.00	1.00	0.90	916.5
10/21	55.00	AIM	SND	Sondrel (Holdings) PLC	61.00	1.00	62.00	51.67	5335.2

§Placing price. *Intoduction. ‡When issued. Annual report/prospectus available at www.ft.com/ir
For a full explanation of all the other symbols please refer to London Share Service notes.

MARKET DATA

FT500: THE WORLD'S LARGEST COMPANIES

Stock	Price	Day Chg	52 Week High	52 Week Low	Yld	P/E	MCap m
Australia (A$)							
ANZ Bank	24.91	0.19	28.33	20.78	5.81	10.87	50001.06
BHP Group	44.82	0.93	53.72	35.83	8.80	10.96	152256.96
CmwBkAu	108.09	-0.39	109.20	86.98	3.11	21.17	122669.6
CSL	302.58	2.24	311.94	240.10	0.96	45.11	97912.34
NatAusBk	31.69	0.10	33.75	25.43	2.72	17.58	67042.7
Telstra	4.00	-0.01	4.20	3.62	2.40	33.88	31014.39
Wesfarmers	48.36	-0.16	60.78	40.03	3.53	25.89	36795.41
Westpac Bank	23.83	0.07	24.67	18.80	3.58	18.05	55987.02
Woolworths	34.99	-	41.13	31.67	2.96	41.55	28562.94
Belgium (€)							
AnBshInBv	56.20	0.02	58.72	45.56	0.92	28.81	101110.35
KBC Grp	52.52	0.90	81.70	45.53	6.37	8.78	22675.21
Brazil (R$)							
Ambev	15.92	0.01	16.88	12.81	3.60	23.64	47322.63
Bradesco	13.40	0.27	17.72	12.69	6.30	6.10	12317.55
Cielo	4.81	0.05	6.22	2.01	3.08	16.00	2466.3
ItauHldFin	22.28	0.18	26.04	18.86	3.53	8.67	20849.02
Petrobras	29.69	1.52	42.08	25.53	16.43	4.16	41702.82
Vale	85.45	4.15	107.11	61.90	15.45	3.75	77068.67
Canada (C$)							
Bausch Hlth	9.35	0.23	36.26	5.10	-	-2.94	2491.18
BCE	64.12	0.04	74.09	55.66	5.20	22.52	43076.18
BkMontrl	130.26	0.23	154.47	113.73	3.31	10.51	64991.49
BkNvaS	69.86	-1.60	95.00	63.19	5.06	9.17	61313.09
Brookfield	61.16	-0.03	79.04	51.07	1.02	21.28	72978.59
CanadPcR	108.71	0.09	110.17	86.12	0.67	27.32	74488.44
CanImp	63.96	-0.40	167.50	55.35	8.94	4.65	42688.88
CanNatRs	80.11	0.38	88.18	48.42	2.37	13.02	65347.68
CanNatRy	169.93	-0.20	171.83	137.26	1.38	25.90	84766.39
Enbridge	55.85	0.22	59.69	46.88	5.69	20.44	83307.81
GtWesLif	32.07	0.29	41.50	27.99	5.73	9.46	22014.38
ImpOil	77.05	1.10	79.83	41.04	1.27	23.25	34331.36
Manulife	23.94	0.32	28.09	20.81	4.65	7.10	33300.59
Nutrien	111.19	2.91	147.93	84.37	1.99	16.75	42866.2
RylBkC	132.98	-0.23	149.60	116.75	3.19	12.39	135794.66
SHOP	51.71	0.37	207.44	33.00	-	1.88	38043.11
Suncor En	45.95	-0.25	53.62	28.77	2.18	17.42	45832.75
ThmReut	153.74	-3.04	157.27	119.23	1.27	11.12	54463.91
TntoDom	89.63	-0.34	109.08	77.27	3.47	11.78	119814.73
TrnCan	62.94	-2.45	74.44	54.60	5.26	35.54	46917.06
China (HK$)							
AgricBkCh	2.57	0.07	3.15	2.22	8.16	3.42	10114.3
Bk China	2.76	0.07	3.20	2.51	7.93	3.46	29549.6
BkofComm	4.44	0.12	5.74	3.84	7.75	3.72	19903.19
BOE Tech	0.81	0.04	0.86	0.57	-	13.23	20.63
Ch Coms Cons	3.80	0.11	5.17	3.09	5.27	3.19	2149.68
Ch Evrbrght	2.35	0.08	3.11	2.04	10.03	3.22	3814.78
Ch Rail Cons	4.76	0.13	5.95	3.75	5.42	2.56	1265.38
Ch Rail Gp	4.31	0.09	5.88	3.48	4.70	3.51	2321.72
ChConstBk	4.72	0.13	6.23	4.12	7.74	3.48	145286.59
China Vanke	16.56	1.98	21.70	9.96	8.46	7.56	4042.23
ChinaCitic	3.42	0.13	4.08	2.92	8.07	3.21	6516.45
ChinaLife	11.64	0.88	15.04	8.53	5.77	5.16	11089.58
ChinaMBank	38.30	3.30	70.80	25.40	3.67	7.15	22512.22
ChinaMob	51.50	-0.10	58.65	45.90	6.15	8.05	134907.29
ChinaPcIns	17.46	1.18	25.90	12.10	7.40	5.76	6204.04
ChMinsheng	2.63	0.10	3.29	2.19	9.20	3.45	2801.69
ChMrchSecs	13.53	0.36	18.56	12.06	3.33	11.73	14010.82
Chna Utd Coms	4.14	-0.04	4.26	3.30	2.78	20.17	17884.51
ChShenEgy	23.10	0.15	27.65	16.06	8.73	7.10	9989.11
ChShpbldng	3.63	0.02	4.33	3.36	-	-262.14	11184.78
ChStConEng	5.88	0.24	6.40	4.63	3.76	4.43	33500.93
ChUncHK	4.16	0.06	4.43	3.27	3.72	9.29	16297.17
CNNC Intl	6.28	-	8.92	5.78	2.04	15.95	16516.72
CSR	3.10	0.03	3.73	2.37	6.57	8.63	1734.88
Daqin	6.82	0.06	7.25	5.95	7.25	10.03	14146.49
GuosenSec	9.17	0.27	11.70	8.43	2.58	10.24	11293.59
HaitongSecs	4.68	0.21	7.34	3.77	6.05	5.15	2042.98
Hngzh HikVDT	31.64	1.27	55.55	28.10	2.60	16.89	40505.91
Hunng Pwr	3.70	-0.01	5.74	2.62	5.26	-4.21	2226.67
IM Baotou Stl	1.98	0.03	3.21	1.75	-	32.75	8750.83
In&CmBkCh	3.88	0.10	4.94	3.37	7.71	3.60	43116.68
IndstrlBk	17.81	1.08	23.22	15.01	4.49	4.74	51621.92
Kweichow	1599	89.12	2216.96	1359	1.24	34.99	280253.45
Midea	0.34	-0.02	0.60	0.33	-	-3.74	13.10
New Ch Life Ins	17.64	0.70	24.70	12.04	8.55	3.39	2335.53
PetroChina	3.48	0.09	4.49	3.01	6.75	7.11	9400.61
PingAnIns	47.25	5.40	69.40	31.30	5.22	7.61	45054.49
PngAnBnk	12.99	1.18	19.06	10.39	1.38	7.54	35170.61
Pwr Cons Corp	7.73	-0.01	9.81	6.50	1.18	15.61	11854.34
SaicMtr	14.77	0.41	22.14	13.77	4.14	7.18	24076.69
ShenwanHong	0.09	0.00	0.18	0.05	-	2.67	100.33
ShgPdgBk	7.27	0.20	8.81	6.64	6.52	4.52	29772.79
Sinopec Corp	3.58	0.08	4.28	3.06	3.83	4.37	11669.4
Sinopec Oil	1.99	0.01	2.37	1.70	-	642.69	3767.54
Denmark (kr)							
DanskeBk	127.15	0.35	133.25	91.28	1.53	8.95	15266.97
MollerMrsk	15085	-165.00	24070	13185	2.19	2.53	17589.29
NovoB	879.90	21.50	892.40	604.40	1.03	43.61	213529.7
Finland (€)							
Nokia	4.57	-0.01	5.71	4.12	-	16.20	26965.76
SampoA	48.33	0.71	48.74	35.85	3.44	10.57	26681.22
France (€)							
Airbus Grpe	109.18	1.82	120.36	86.52	-	20.57	89123.87
AirLiquide	138.76	-2.18	153.40	114.48	1.93	26.32	75215.82
AXA	27.36	0.26	29.09	20.34	5.09	9.47	66195.3
BNP Parib	53.57	0.77	68.07	40.67	4.86	7.93	68480.24
ChristianDior	693.50	3.50	733.50	513.00	0.98	26.02	129644.32
Cred Agr	9.61	-0.02	14.27	8.09	8.10	5.39	30268.67
Danone	50.30	0.01	58.24	46.48	3.75	17.59	35206.45
EDF	12.00	-	12.48	6.64	3.95	9.49	48301.5
Engie SA	14.36	-0.01	14.68	9.79	3.59	10.39	36217.29
EssilorLuxottica	175.50	-0.35	188.64	132.70	0.60	55.00	81321.83
Hermes Intl	1484	-12.00	1678	957.60	0.30	65.47	162249.64
LOreal	347.50	-5.20	433.65	300.45	1.12	43.51	193162.12
LVMH	702.00	3.30	738.50	535.00	0.97	30.20	365880.25
Orange	9.84	-0.04	11.94	8.93	5.93	3357.99	27119.04
PernodRic	186.95	0.55	214.00	166.60	1.62	29.01	49942.27
Renault	33.78	0.39	38.07	20.47	-	-25.92	10345.59
Safran	116.50	1.20	117.62	87.85	0.36	1197.52	51548.09
Sanofi	88.19	0.30	106.08	76.45	3.53	18.32	115764.47
Sant Gbn	44.18	-0.03	64.82	35.20	2.99	10.86	23598.4
Schneider	138.88	-2.20	173.78	110.02	1.82	25.18	82140.67
SocGen	24.08	0.07	37.68	18.34	2.24	4.18	21190.32
Total	58.94	1.20	59.37	40.09	4.46	11.64	159874.47
UnibailR	51.98	-0.10	73.09	39.68	-	-7.61	7469.84
Vinci	96.59	-0.20	103.74	80.74	2.71	22.01	59818.55
Vivendi	8.55	-0.10	12.16	7.59	6.83	-15.69	9816.07
Germany (€)							
Allianz	205.60	1.80	232.50	156.22	4.54	13.35	85877.25
BASF	49.06	0.15	69.15	37.90	6.54	8.35	46666.84
Bayer	55.96	0.21	67.99	43.91	3.48	56.39	56936.19
BMW	84.75	1.31	97.60	67.58	2.18	4.64	52837.77
Continental	57.88	0.94	98.64	44.44	-	9.17	11989.01
Deut Bank	10.21	0.00	14.64	7.46	-	10.32	21853.98
Deut Tlkm	19.46	-0.23	19.86	14.47	3.00	23.00	100516.18
DeutsPost	37.84	-0.25	56.91	29.68	3.55	9.84	48557.35
E.ON	9.09	-	12.54	7.28	5.03	5.19	24854.52
Fresenius Med	29.66	-0.13	63.66	26.19	4.40	9.21	9000.3
Fresenius SE	26.27	0.43	38.11	19.76	3.34	8.54	15194.86
HenkelKgaA	64.50	-	74.75	56.55	2.76	17.63	17354.16
Linde	321.10	-8.60	334.70	244.00	1.13	51.28	164404.05
Mercedes-Benz	62.54	1.03	77.90	50.19	2.10	6.43	69292.69
MuenchRkv	301.50	6.20	302.50	205.15	3.16	14.81	43745.55
SAP	103.08	-1.82	125.26	81.35	1.75	23.76	131148.34
Siemens	133.08	1.54	154.70	93.67	2.56	20.57	117150.32
Volkswgn	181.70	0.95	282.60	158.80	2.57	6.31	55529.13
Hong Kong (HK$)							
AIA	76.20	3.90	92.50	57.25	1.55	19.70	115354.86
BOC Hold	24.95	0.80	32.75	23.20	4.42	12.94	33773.9
Ch OSLnd&Inv	21.35	1.51	27.35	14.58	4.99	5.36	29917.84
ChngKng	47.15	0.75	57.00	42.90	3.34	10.90	21763.63
Citic Ltd	7.79	0.15	9.26	6.96	6.13	3.64	29014.05
Citic Secs	15.18	0.50	21.32	11.82	2.80	7.90	5092.22
CK Hutchison	44.25	0.85	60.45	38.80	4.57	5.67	21724.08
CNOOC	10.18	0.12	12.54	7.55	3.94	8.98	58100.02
HangSeng	119.40	1.60	169.50	110.00	4.53	19.41	29226.55
HK Exc&Clr	300.00	21.00	483.60	208.20	2.71	34.18	48697.4
MTR	37.25	0.20	43.70	33.45	2.93	27.25	29578.99
SandsCh	19.88	1.08	24.90	12.50	-	-22.18	20599.51
SHK Props	92.70	1.65	99.55	83.10	4.74	10.70	34392.71
Tencent	285.80	15.80	488.00	198.60	0.50	11.36	350596.91
India (Rs)							
Bhartiartl	835.85	-1.55	860.55	628.75	-	183.45	60912.52
HDFC Bk	1597.85	-2.40	1722.1	1271.6	-	27.85	108995.31
Hind Unilevr	2634.2	109.00	2734	1927	1.18	72.54	75735.48
HsngDevFin	2665.25	6.55	2933.8	2026	0.84	23.32	59335.91
ICICI Bk	946.75	9.35	949.90	642.15	0.21	30.88	80784.2
Infosys	1629.05	5.65	1923.3	1360	1.81	33.09	83880.96
ITC	342.30	2.25	361.45	207.00	3.06	29.24	51981.37
L&T	2050.55	-13.90	2095.8	1456.35	0.86	34.97	35260.38
OilNatGas	140.25	0.65	189.80	119.85	6.32	4.08	21589.9
RelianceIn	2712.2	4.65	2856.15	2222	0.25	31.90	224549.27
SBI NewA	608.55	-0.05	622.70	430.70	0.64	17.45	66457.48
SunPhrmInds	1049.85	15.10	1070.95	733.70	0.70	40.22	30823.11
Tata Cons	3397.35	2.10	3920	2950.1	1.04	33.36	152113.28
Israel (ILS)							
TevaPha	30.30	0.05	37.23	23.83	-	26.14	9803.13
Italy (€)							
Enel	5.11	0.04	7.07	3.96	6.98	24.41	53761.51
ENI	14.20	0.18	14.85	10.43	4.62	6.14	53009.6
Generali	16.94	0.24	21.55	13.67	8.44	9.78	27738.06
IntSPaolo	2.13	0.02	2.92	1.58	1.67	68.00	42952.79
Unicred	12.96	-0.14	15.93	7.75	0.90	19.78	30028.48
Japan (¥)							
AstellasPh	2128.5	-13.50	2205	1739	2.30	30.84	28249.48
Bridgestne	5164	-70.00	5509	4042	3.42	11.30	26644.05
Canon	3197	9.00	3516	2467	3.25	14.89	30826.26
CntJpRwy	16765	5.00	17920	14660	0.83	-30.26	24967.21
Denso	7562	-122.00	9575	6549	1.97	19.94	43075.65
EastJpRwy	7843	57.00	8280	6373	1.36	-7.57	21428.69
Fanuc	20460	15.00	25300	18740	2.35	23.42	29864.93
FastRetail	81460	1390	88230	54310	0.69	36.80	62467.09
Fuji Hvy Ind	2283.5	-25.00	2684	1664.5	2.61	25.25	12697.72
Hitachi	7348	-43.00	7463	4750	1.67	10.37	51451.77
HondaMtr	3300	-52.00	3755	3043	4.16	6.72	43214.99
JapanTob	2816.5	-10.50	2848	2000	5.16	13.80	40722.94
KDDI	4085	-39.00	4636	3237	3.13	13.17	68003.47
Keyence	58440	-1090.00	74710	44880	0.36	47.00	102751.18
MitsbCp	4578	-30.00	4845	3383	3.21	9.83	48788.27
MitsubEst	996.88	-8.59	1013.24	876.51	-	-	-
MitsubishiEle	1391	-22.00	1518	1225.5	3.06	11.97	21592.32
MitsuiFud	975.52	2.79	979.64	684.38	-	-	-
MitUFJFin	764.40	12.50	828.30	601.40	3.62	7.46	73397.9
Mizuho Fin	1723.5	22.00	1725.5	1397	4.82	7.93	31638.52
Murata Mfg	7448	-123.00	9410	6604	1.71	14.39	36387.42
Nippon T&T	3839	-40.00	4128	3054	2.91	11.63	100523.46
NipponTT	3839	-40.00	4128	3054	2.91	11.63	100523.46
Nissan Mt	493.50	-8.50	643.00	436.50	-	15.08	15058.16
Nomura	502.30	1.90	562.20	460.30	4.87	-32.51	11742.04
Nppn Stl	2188	10.00	2318.5	1690.5	3.89	3.25	15032.01
Panasonic	1253.5	-25.50	1325	1006.5	2.12	11.93	22238.64
Seven & I	5667	-35.00	6083	4552	1.93	20.29	36316.4
ShnEtsuCh	17515	-145.00	20200	14185	1.76	15.79	52034.79
Softbank	5959	-83.00	7180	4210	0.79	4.82	74224.33
Sony	11370	-140.00	14745	9213	0.56	13.66	103658.05
SumitomoF	4672	1.00	4816	3672	4.56	8.55	46430.92
Takeda Ph	4008	-28.00	4063	2993	4.78	13.53	45847.26
TokioMarine	2905.5	15.50	2970.5	1886	8.06	4.44	42849.96
Toyota	2005.5	-27.50	2375.5	1805	2.71	8.51	236542.19
Mexico (Mex$)							
AmerMvl	18.74	-0.51	21.44	15.66	1.73	15.22	41413.81
FEMSA UBD	150.87	-2.45	169.96	120.63	1.34	123.85	16974.63
WalMrtMex	73.55	-1.65	82.93	64.81	0.68	36.80	66860.23
Netherlands (€)							
ASML Hld	559.80	-7.00	733.20	376.10	0.59	44.42	233720.56
Heineken	88.70	0.32	100.95	77.50	1.07	15.80	52912.69
ING	11.66	0.14	14.00	7.90	5.01	9.75	45008.03
Unilever	47.77	-0.36	48.81	39.36	3.00	24.52	145302.26
Norway (Kr)							
DNB	190.80	2.40	220.50	168.05	9.14	12.17	29835.95
Equinor	377.00	14.65	410.95	220.50	1.31	16.22	120051.38
Telenor	97.92	-0.80	148.80	88.54	9.21	16.51	13741.96
Qatar (QR)							
QatarNtBk	19.30	0.38	27.00	18.40	2.60	15.69	48949.84
Saudi Arabia (SR)							
AlRajhiBnk	81.80	-	117.40	78.60	2.61	15.58	87073.4
Natnlcombnk	52.20	-	82.00	51.50	2.47	19.69	62205.2
SaudiBasic	82.50	-	141.40	81.10	3.50	12.06	65863.89
SaudiTelec	38.00	-	48.88	37.10	9.36	7.55	50562.15
Singapore (S$)							
DBS	34.95	0.50	37.49	29.45	3.18	14.99	65473.4
JardnMt US$	48.60	1.31	62.10	42.60	3.14	9.13	14085.45
OCBC	12.37	0.06	13.54	10.98	3.06	12.90	40462.72
SingTel	2.73	0.03	2.88	2.31	2.47	48.19	32802.95
UOB	30.80	0.50	33.33	25.47	2.90	14.33	37544.02
South Africa (R)							
Firstrand	65.04	-1.92	79.34	54.87	3.81	12.31	21491.24
MTN Grp	135.95	0.43	211.49	115.46	-	19.39	15089.7
Naspers N	2484.51	6.69	2853.25	1392.5	0.23	13.98	63737.96
South Korea (KRW)							
HyundMobis	208500	-	265500	189500	1.90	8.22	14816.99
KoreaElePwr	20250	250.00	25100	16500	5.99	-11.96	9798.21
SK Hynix	83700	600.00	134000	80400	1.82	6.05	45927.11
SmsungEl	60600	500.00	80800	51800	2.36	10.61	272672.92
Spain (€)							
BBVA	5.62	0.08	6.12	3.97	6.42	7.87	35122.29
BcoSantdr	2.84	0.03	3.48	2.32	2.62	5.84	49318.1
CaixaBnk	3.55	0.01	3.64	2.22	0.74	23.98	29618.69
Iberdrola	10.66	-0.10	11.49	8.47	3.85	18.79	70204.56
Inditex	24.92	0.16	29.89	18.55	0.86	27.01	80435.55
Repsol	14.64	0.25	16.23	9.60	3.99	9.17	22013.52
Telefonica	3.59	-0.02	5.06	3.24	9.38	2.69	21472.16
Sweden (SKr)							
AtlasCpcoB	116.40	-0.60	133.60	22.08	6.47	7.60	17231.79
Ericsson	64.48	-0.52	117.32	58.81	3.60	9.29	18789.33
H & M	117.62	1.06	191.86	98.25	5.52	15.84	16294.57
Investor	191.42	-1.86	228.75	158.22	1.89	8.05	33077.26
Nordea Bk	109.86	1.16	113.78	85.25	13.72	12.53	38432.1
SEB	119.55	0.55	136.15	91.64	8.71	9.77	24429.76
SvnskaHn	104.30	0.85	107.45	80.88	4.94	10.01	19238.14
Swedbank	167.45	0.90	189.60	124.50	8.97	8.74	17978.06
Telia Co	28.85	-0.30	41.70	27.93	7.15	9.95	11190.21
Volvo	190.68	-	218.65	148.24	3.51	12.14	28727.09
Switzerland (SFr)							
ABB	29.43	-0.06	33.86	23.84	2.62	14.51	60779.37
CredSuisse	2.90	-0.11	9.26	2.87	3.19	-4.68	8085.84
Nestle	111.26	-2.24	128.90	103.42	2.29	19.85	321611.4
Novartis	83.30	0.02	88.42	73.01	3.35	9.30	210469.3
Richemont	119.95	2.65	146.10	90.28	1.51	29.38	65815.84
Roche	309.25	-3.15	404.20	298.60	2.63	21.29	228378.11
Swiss Re	84.52	0.74	102.20	68.18	6.47	20.98	28207.15
Swisscom	504.80	-3.60	587.40	443.40	4.03	15.43	27486.86
UBS	17.35	0.06	19.90	13.10	1.85	9.18	64279.63
Zurich Fin	452.00	0.10	461.70	376.00	4.10	15.47	71485.78
Taiwan (NT$)							
Chunghwa Telecom	112.00	1.50	132.50	105.50	3.79	24.62	28064.5
Formosa PetChem	84.50	0.50	103.50	75.20	0.69	16.44	26000.73
HonHaiPrc	100.00	-	116.00	99.50	3.97	10.18	44779.26
MediaTek	713.00	10.00	1200	533.00	5.14	10.24	36836.32
TaiwanSem	487.00	6.50	650.00	370.00	2.17	19.57	407904.07
Thailand (THB)							
PTT Explor	33.25	-	41.25	32.75	5.71	9.34	26807.51
United Arab Emirates (Dhs)							
Emirtestele	24.30	0.70	38.98	11.60	2.75	27.17	57535.64
United Kingdom (p)							
Anglo American	3289.5	116.00	4292.5	2487.5	5.42	6.51	52799.76
AscBrFd	1585	9.50	2063	1223	0.39	26.20	15031.36
AstraZen	11060	10.00	11540	8090.32	1.87	1872.67	205652.68
Aviva	448.60	-0.60	606.58	341.92	4.76	59.03	15089.64
Barclays	161.00	2.82	209.45	132.06	1.86	3.91	30632.23
BP	492.05	8.50	503.30	317.65	3.20	17.85	107423.37
BrAmTob	3350.5	-7.50	3645	2514	6.43	11.33	90013.12
BT	122.85	-0.95	201.40	113.80	-	11.93	14639.39
Compass	1830.5	-16.50	1970.5	1450.6	0.76	44.54	38589.01
Diageo	3768	-18.00	4097	3282.5	1.93	28.98	102810.56
GlaxoSmh	1417.8	23.00	2753.96	1280.92	5.64	16.37	69201.2
Glencore	550.80	12.50	552.40	346.40	1.61	20.16	85155.32
HSBC	510.30	21.70	567.20	409.85	3.17	11.15	122278.11
Imperial Brands	2123	-8.00	2185	1434.23	6.51	7.10	24021.63
Jardine Mathes.	62.50	-	60.50	46.89	2.44	11.74	18114.01
LlydsBkg	46.33	0.51	56.00	38.10	5.55	6.43	37395.22
LSE Group	8044	-94.00	8612	6230	0.95	82.25	49141.14
Natl Grid	1008.5	-7.50	1271.45	844.29	4.87	23.51	44296.56
Natwest Group	260.50	5.90	284.42	196.92	4.03	10.26	30592.72
Prudential	964.80	36.40	1334	782.40	1.22	15.67	31830.61
ReckittB	5940	-28.00	6824	5400	2.94	-25.70	51013.28
RELX	2290	-47.00	2474	2056	2.08	30.21	52636.63
RioTinto	5563	200.00	6343	4436.95	9.03	5.82	83413.71
RollsRoyce	89.12	0.50	161.91	64.44	-	60.63	8948.64
Shell PLC	2400.5	40.00	2527	1535.56	2.52	12.65	203576.41
StandCh	609.00	29.20	641.00	406.20	1.45	13.66	21154.92
Tesco	233.00	0.40	304.10	194.35	3.93	11.86	20704.7
Unilever♦	4124.5	-30.50	4178	3267.5	3.51	21.17	125468.27
Vodafone	91.84	-0.97	141.60	89.87	8.42	-205.46	30247.6
WPP	868.40	-4.00	1231.5	713.00	3.05	16.54	11160.06
United States of America ($)							
21stC Fox A	31.39	0.39	44.95	28.02	1.33	14.34	9494.68
3M	125.50	0.86	179.18	107.07	4.18	14.00	69369.24
AbbottLb	104.68	-0.71	142.60	93.25	1.52	29.99	182517.3
Abbvie	157.64	-0.80	175.91	115.10	2.92	27.58	278774.42
Accenture	287.25	-3.35	417.37	242.95	1.14	32.92	190958.96
Activision Bli.	73.95	-0.77	82.00	56.40	0.56	24.26	57875.14
Adobe	326.08	-2.89	694.89	274.73	-	36.21	151594.59
Advanced Micro	73.43	0.24	164.46	54.57	-	32.25	118395.31
AEP	94.48	-0.74	105.60	80.22	2.81	21.50	48549.84
Aflac	71.01	0.02	72.70	52.07	1.65	12.54	44150.1
AirProd	302.03	-2.43	311.13	216.24	1.76	35.81	67010.18
Allstate	132.18	0.31	144.46	106.11	2.17	8.79	35055.4
Alphabet	95.09	-0.96	151.55	83.34	-	0.96	567972.57
Altria	45.43	0.28	57.05	40.35	6.86	38.27	81423.78
Amazon	92.41	-1.54	179.80	85.87	-	1.61	942734.86
AmerAir	13.98	0.15	21.42	11.65	-	-4.22	9087.82
AmerExpr	152.77	1.90	199.55	130.65	1.08	16.75	114154.74
AmerIntGrp	61.52	0.78	65.73	47.05	1.84	6.42	45704.42
AmerTower	215.05	1.15	291.99	178.17	2.15	42.88	100128.48
Amgen	280.72	-1.90	296.67	198.64	2.22	30.82	149786.35
Amphenol Corp	77.07	-0.75	88.45	61.67	0.90	34.66	45863.94
Analog Devices	163.47	-0.54	188.20	133.48	1.51	61.95	83254.61
Anthem	482.58	12.71	-	-	-	-	-
Aon Cp	305.50	0.23	341.98	246.21	0.58	62.13	63193.57
Apple	142.11	-2.12	182.13	129.04	0.54	26.60	2260623.11
Applied Materi.	103.38	-0.09	167.06	71.12	0.81	16.10	88941.54
Aptiv	101.53	-0.49	170.76	77.96	-	59.07	27509.51
ArcherDan	96.71	0.46	98.88	61.80	1.36	22.79	53126.11
AT&T	18.85	0.03	21.53	14.46	9.78	7.71	134337.54
Autodesk	191.84	-3.51	285.38	163.20	-	95.75	41410.4
AutomData	256.31	-2.02	264.94	192.26	1.32	44.78	106326.29
AutoZone	2546.34	0.36	2575.29	1703.32	-	25.97	48333.16
Avago Tech	519.15	-3.06	677.76	415.07	2.57	33.09	210256.51
BakerHu	28.55	0.36	39.78	20.42	2.30	74.58	28591.9
Bank of NY	44.76	-0.04	64.63	36.22	2.57	12.20	36178.61
BankAm	36.84	-0.02	50.11	29.31	1.88	11.65	295546.4
Baxter	55.64	0.45	89.70	49.83	1.73	24.82	28049.28
BectonDick	238.77	1.43	277.29	215.90	1.25	46.63	67661.64
BerkshHat	471567.01	-1145.00	544389.26	393012.25	-	8.95	281443.45
Biogen	293.06	1.16	307.53	187.16	-	31.81	42201.05
BlackRock	714.89	-6.28	934.76	503.12	2.05	21.11	107373.32
Boeing	173.81	1.98	223.23	113.02	-	-27.44	103210.32
Booking Holdings	2014.55	29.65	2715.66	1616.85	-	80.72	78143.16
Bristol-Myers	78.72	-0.43	81.17	53.22	2.26	28.48	167360.71
Broadcom	519.15	-3.06	677.76	415.07	2.57	33.09	210256.51
Cadence Design	162.79	-2.17	194.97	132.32	-	73.49	44654.53
CapOne	101.16	1.58	160.54	90.27	1.75	4.24	38612.63
CardinalHlth	79.14	0.68	81.57	45.85	2.19	46.28	20745.29
Carnival	9.57	0.25	23.86	6.11	-	-1.29	10643.04
Caterpillar	234.20	1.90	239.85	160.60	1.62	22.34	121878.31
Centene Corp	84.79	-0.15	98.53	69.51	-	41.97	48010.33
CharlesSch	80.40	0.57	96.24	59.35	0.79	32.06	145984.91
Charter Comms	384.00	-0.47	693.09	297.66	-	17.71	59778.16
Chevron Corp	180.46	2.10	189.68	110.73	2.61	25.02	348944.41
Chipotle Mexic.	1539.12	11.56	1776.67	1196.28	-	75.86	42666.19
Chubb	216.50	1.10	218.99	173.78	1.30	12.68	89856.31
Cigna	320.39	0.88	331.05	191.74	1.11	22.99	97955.72
Cintas Corp	447.87	-6.48	461.44	343.86	0.72	44.32	45478.6
Cisco	48.02	-0.06	64.29	38.61	2.76	19.24	197322.31
Citigroup	47.38	0.15	69.11	40.01	3.81	5.27	91768.09
CME Grp	173.95	0.82	256.94	166.58	1.83	26.93	62574.16
Coca-Cola	62.16	-0.54	67.20	52.28	2.39	31.18	268811.74
Cognizant	59.58	-0.52	93.47	51.33	1.43	16.60	30619.44
ColgtPlm	75.89	-0.49	85.18	67.84	2.09	33.59	63384.41
Comcast	35.15	-0.44	53.32	28.39	2.52	13.05	151635.85
ConocPhil	124.69	0.85	138.49	66.06	1.39	23.19	155370.11
Constellation	251.30	-6.20	261.53	207.59	1.08	-1277.16	40515.72
Corning	32.99	-0.12	43.47	28.98	2.58	29.09	27903.32
Corteva	65.83	0.90	68.43	43.74	0.72	31.34	47035.01
Corteva	65.83	0.90	68.43	43.74	0.72	31.34	47035.01
Costco	529.18	-1.74	612.27	406.51	0.53	47.68	234217.26
CrownCstl	138.99	1.47	208.69	121.71	3.48	58.76	60189.34
CSX	31.80	0.10	38.63	25.80	1.09	19.82	66856.6
CVS	100.66	0.25	111.25	86.28	1.76	19.09	132263.91
Danaher	257.20	-3.97	331.69	233.71	0.31	33.12	187228.37
Deere	438.29	-2.92	448.40	283.81	0.80	27.16	132284.53
Delta	34.05	0.18	46.27	27.20	-	46.12	21829.26
Devon Energy	67.00	0.47	79.40	35.55	2.61	18.05	43797.9
Digital Realty	108.49	1.01	176.53	85.76	3.79	20.61	31191.85
DiscFinServ	107.87	1.02	129.12	87.64	1.54	6.83	29471.5
Disney	94.84	-0.85	157.50	86.28	-	62.24	172898.8
Dollar General	251.99	-1.11	262.21	183.25	0.60	27.70	56841.82
DominRes	59.73	-0.89	88.78	57.95	3.74	21.13	49771.53
DukeEner	97.79	-0.82	116.33	83.76	3.53	22.39	75304.44
DuPont	69.70	0.68	84.08	49.52	1.53	24.36	34626.19
Eaton	162.10	-0.45	174.47	122.50	1.66	34.26	64467.17
eBay	43.80	-0.53	72.66	35.92	1.46	130.10	23768.47
Ecolab	145.39	-0.09	236.89	131.04	1.19	41.97	41411.15
Edwards Lifesc.	75.14	-0.64	131.73	67.13	-	35.63	46456.09
Eli Lilly	362.87	-2.90	369.80	231.87	0.83	66.92	344788.68
Emerson	93.95	-0.27	100.00	72.41	1.91	23.15	55562.03
EOG Res	139.58	2.93	150.88	80.67	1.02	19.72	81987.83
Equinix	667.78	5.17	847.10	494.89	1.52	136.30	61795.1
EquityResTP	63.10	0.91	94.32	59.32	3.38	20.79	23846.68
Exelon	39.91	-0.33	50.71	29.10	3.40	25.89	39655.28
ExxonMb	110.47	0.66	114.66	57.96	2.80	23.13	454947.87
Fedex	176.48	3.27	260.50	141.92	1.44	10.71	45923.59
Fidelity NIS	67.44	1.91	122.06	56.53	2.05	113.61	40017.51
Fiserv	101.75	-0.01	110.94	87.03	-	57.71	64614.11
FordMtr	13.77	0.04	25.87	10.61	0.64	3.49	54378.67
Franklin	26.19	0.17	35.18	20.24	3.82	7.82	13083.44
GenDyn	250.66	0.17	254.99	188.64	1.65	24.50	68818.44
GenElectric	85.60	0.13	101.91	59.93	0.33	-29.73	93532.39
GenMills	82.68	-0.25	83.79	61.41	2.21	24.65	49073.53
GenMotors	39.78	0.40	67.21	30.33	-	6.70	56515.32
GileadSci	85.19	-0.03	88.20	57.17	2.95	19.50	106842.76
GoldmSchs	382.42	0.06	401.75	277.84	1.51	7.26	129500.64
Halliburton	37.09	1.21	43.99	20.77	0.63	23.52	33674.91
HCA Hold	237.52	3.17	279.02	164.47	0.72	12.67	67150.87
Hew-Pack	29.12	-0.10	41.47	24.08	2.55	5.93	29287.91
Hilton Worldwi.	138.81	1.81	167.99	108.41	-	107.31	37542
HiltonWwde	138.81	1.81	167.99	108.41	-	107.31	37542
HomeDep	317.92	-1.00	420.61	264.51	1.86	22.89	325463.11
Honywell	216.07	0.30	220.96	166.63	1.55	30.83	145268.66
HumanaInc	533.14	-1.15	571.30	363.73	0.47	26.54	67495.69
IBM	146.24	0.06	150.46	115.55	3.97	31.68	132219.44
IDEXX Laborato.	406.46	6.36	664.70	317.06	-	53.35	33661.78
IllinoisTool	223.05	-1.11	248.11	173.52	1.87	29.58	68517.92
Illumina	211.23	-5.69	397.44	173.45	-	47.30	33225.69
Intcntl Exch	105.32	0.24	138.46	88.60	1.11	16.56	58826.66
Intel	28.88	0.15	55.00	24.59	4.26	6.71	119167.13
Intuit	380.13	-5.51	697.27	339.36	0.60	53.73	107147.2
John&John	174.90	-2.43	186.69	155.72	2.12	25.28	457273.18
JohnsonCn	65.58	-0.26	81.69	45.52	1.55	33.80	45034.04
JPMrgnCh	135.60	1.25	164.78	101.28	2.48	9.96	397742.58
Kimb-Clark	131.86	-1.45	144.53	108.74	3.17	27.93	44501.71
KinderM	18.78	0.32	20.20	15.01	5.24	45.78	42201.36
KLA Corp	372.89	-2.04	442.44	250.20	0.93	21.66	52845.35
Kraft Heinz	38.87	-0.01	44.87	32.73	3.65	53.50	47606.91
Kroger	49.00	0.17	62.78	40.18	1.42	25.24	35070.93
LasVegasSd	44.40	0.75	48.27	28.88	-	-33.18	33925.16
LibertyGbl	19.69	0.16	29.08	15.22	-	0.95	3383.89
Lilly (E)	362.87	-2.90	369.80	231.87	0.83	66.92	344788.68
Linde	332.00	-5.70	346.50	262.47	1.13	51.19	164134
Lockheed	483.31	0.10	494.66	328.20	2.04	23.42	126662.97
Lowes	207.38	-1.66	263.31	170.12	1.29	19.26	128719.58
Lyondell	84.88	1.13	117.22	71.46	4.63	5.71	27639
Marathon Ptl	124.50	2.58	127.62	59.75	1.65	69.57	58348.27
Marsh&M	168.59	0.21	183.14	142.80	1.41	29.27	83622.24
MasterCard	341.65	-2.94	399.92	276.87	0.58	44.02	325866.81
McDonald's	271.03	-1.85	281.67	217.68	1.72	30.47	198508.85
McKesson	381.28	0.94	401.78	215.27	0.41	48.74	54063.02
Medtronic	76.17	0.04	114.44	75.84	2.90	23.46	101242.27
Merck	108.23	-0.23	108.90	71.50	2.16	25.13	274393.23
Meta	196.64	0.99	384.33	169.00	-	15.41	450997.53
Metlife	75.89	0.16	77.36	57.05	2.22	11.72	59543.76
Microsoft	239.67	-2.09	344.30	213.43	0.85	28.81	1786613.58
Mnstr Bvrg	100.20	-1.68	104.49	71.78	-	44.01	52278.71
MondelezInt	65.72	-0.43	69.47	54.72	1.79	24.40	89752.55
Monsanto	10.01	-	10.02	9.66	-	51.79	250.25
MorganStly	90.68	0.79	109.73	72.05	2.05	12.75	153259.12
Netflix	279.00	-2.18	675.38	162.71	-	28.02	124158.49
NextEraE	82.34	-1.40	92.91	67.22	1.75	122.08	163613.12
Nike	105.98	1.02	173.37	82.22	0.98	31.27	133921.91
NorfolkS	251.40	2.85	296.87	203.65	1.47	23.43	58202.67
Northrop	526.53	1.65	556.27	345.91	1.04	13.65	81039.37
NXP	163.88	-0.22	239.91	132.08	1.22	27.24	42467.02
Occid Pet	69.13	0.90	77.13	26.05	0.05	37.88	62833.24
Oracle	80.84	-0.56	106.34	60.78	1.42	34.50	217944.6
Pepsico	181.43	-2.46	186.62	153.37	2.07	37.30	249957.78
Perrigo	32.09	0.12	43.90	31.32	2.65	-36.95	4319.92
Pfizer	49.29	-0.28	61.71	41.45	2.80	14.16	276680.27
Phillips66	109.14	1.32	113.53	67.93	2.94	41.48	51583.08
PhilMorris	97.17	-0.46	112.48	82.85	4.47	18.81	150633.16
PNCFin	163.90	1.29	214.50	143.52	2.59	14.57	66103.99
PPG Inds	131.63	1.33	172.78	107.06	1.60	32.60	30936.66
ProctGmbl	144.77	-1.83	165.35	122.18	2.19	27.77	345348.76
Prudntl	106.49	0.94	124.22	85.46	3.83	6.16	39614.28
PublStor	288.20	-0.35	421.76	270.73	2.46	32.96	50618.98
Qualcomm	119.00	-0.54	192.68	101.93	2.00	15.39	133399
Raytheon	97.25	0.35	106.02	79.00	1.83	42.54	142963.41
Regen Pharm	729.44	-12.05	769.63	538.01	-	11.44	78110.66
S&P Global	348.51	-2.50	484.21	279.32	0.78	31.44	113544.56
Salesforce	152.17	-1.52	299.27	136.04	-	114.95	152170
Schlmbrg	51.10	1.22	56.04	27.65	0.87	43.69	72452.39
Sempra Energy	161.49	-1.59	176.47	119.56	2.41	45.45	50761.69
Shrwin-Will	242.64	-2.92	354.15	195.24	0.80	39.24	62878.56
SimonProp	116.94	1.18	164.68	86.02	5.42	19.30	38233.04
SouthCpr	58.80	1.17	79.32	42.42	4.82	15.12	45458.19
Starbucks	98.48	-0.19	117.34	68.39	1.66	30.04	113029.61
StateSt	73.22	-0.30	103.76	58.62	2.64	11.49	26867.36
Stryker	226.97	-0.30	279.28	188.84	1.01	49.17	85892.24
Sychrony Fin	37.21	0.79	48.57	27.22	2.16	5.53	16764.11
T-MobileUS	148.63	-1.27	154.38	101.51	-	69.61	184918.63
Target	165.12	-0.25	254.87	137.16	1.71	13.09	75998.57
TE Connect	123.24	-1.38	164.12	104.76	1.42	18.90	39095.49
Tesla Mtrs	182.68	-0.24	390.95	166.19	-	42.08	576858.22
TexasInstr	172.38	-0.62	199.90	144.46	2.16	23.56	156447.21
TheTrvelers	186.44	0.12	189.53	145.40	1.72	12.97	43691.75
ThrmoFshr	532.82	-7.21	668.94	475.77	0.17	30.90	208969.64
TJX Cos	80.08	0.05	81.17	53.69	1.16	33.16	92977.12
Truist Financial Corp	45.46	0.14	66.10	40.01	3.63	11.48	60308.16
Twitter	53.70	0.35	60.16	31.30	-	-224.30	41093.72
UnionPac	210.53	2.01	278.94	183.70	1.95	21.96	129434.01
UPS	183.35	3.44	233.72	154.87	1.97	14.10	133812.67
USBancorp	44.30	0.56	60.50	38.39	3.52	9.80	65821.98
UtdHlthcre	525.96	-6.31	558.10	439.22	0.94	32.83	491430.24
ValeroEngy	136.33	1.49	146.81	65.13	2.55	67.79	52558.39
Verizon	38.23	-0.02	55.51	34.55	5.88	8.11	160538.02
VertexPharm	313.45	-1.85	323.61	185.46	-	39.27	80459.94
VF Cp	32.18	-0.23	78.17	26.46	5.42	11.91	12504.06
Visa Inc	208.09	-3.18	235.85	174.60	0.57	38.89	338797.58
Walgreen	41.01	0.20	53.46	30.39	4.14	6.70	35461.66
WalMartSto	153.25	-0.26	160.77	117.27	1.28	35.18	415956.96
Walt Disney	94.84	-0.85	157.50	86.28	-	62.24	172898.8
Waste Manage.	163.77	-0.82	175.98	138.58	1.24	43.09	67223.83
WellsFargo	47.37	0.39	60.30	36.54	1.44	10.81	180502.95
Williams Cos	34.10	0.62	37.97	24.86	4.26	31.03	41539.3
Workday	143.09	-2.16	285.58	128.72	-	1333.20	28761.09
Yum!Brnds	125.94	-0.51	139.85	103.97	1.41	27.28	35475.77
Zoetis	146.72	-1.41	249.27	124.15	0.60	38.78	68382.08
Zoom	71.44	-0.15	221.41	70.44	-	17.75	17929.67
Venezuela (VEF)							
Bco de Vnzla	1.75	0.15	2.14	0.32	121.38	-	591.38
Bco Provncl	4.15	-	4.15	1.70	-	0.00	144.20

Closing prices and highs & lows are in traded currency (with variations for that country indicated by stock), market capitalisation is in USD. Highs & lows are based on intraday trading over a rolling 52 week period.
♦ ex-dividend
■ ex-capital redistribution
price at time of suspension

FT 500: TOP 20

	Close price	Prev price	Day change	Day change %	Week change	Week change %	Month change %
China Vanke	16.56	14.58	1.98	13.58	3.78	29.6	38.69
BOE Tech	0.81	0.77	0.04	5.19	0.13	19.1	16.44
Ch Rail Cons	4.76	4.63	0.13	2.81	0.69	17.0	21.17
Ch Rail Gp	4.31	4.22	0.09	2.13	0.56	14.9	11.98
PingAnIns	47.25	41.85	5.40	12.90	6.10	14.8	45.45
Ch Coms Cons	3.80	3.69	0.11	2.98	0.47	14.1	18.01
ChStConEng	5.88	5.64	0.24	4.26	0.71	13.7	20.00
PngAnBnk	12.99	11.81	1.18	9.99	1.53	13.4	21.63
Ch OSLnd&Inv	21.35	19.84	1.51	7.61	2.39	12.6	34.84
ChinaLife	11.64	10.76	0.88	8.18	1.28	12.4	28.68
ChinaMBank	38.30	35.00	3.30	9.43	4.00	11.7	43.90
SHOP	52.87	51.34	1.53	2.98	5.51	11.6	13.60
Chna Utd Coms	4.14	4.18	-0.04	-0.96	0.43	11.6	22.49
IndstrlBk	17.81	16.73	1.08	6.46	1.70	10.6	18.26
SandsCh	19.88	18.80	1.08	5.74	1.78	9.8	51.68
New Ch Life Ins	17.64	16.94	0.70	4.13	1.54	9.6	33.08
ChUncHK	4.16	4.10	0.06	1.46	0.36	9.5	25.00
Pwr Cons Corp	7.73	7.74	-0.01	-0.13	0.66	9.3	2.66
CSR	3.10	3.07	0.03	0.98	0.24	8.4	27.05
Fresenius SE	26.36	25.84	0.52	2.01	2.01	8.3	8.25

Based on the FT Global 500 companies in local currency

FT 500: BOTTOM 20

	Close price	Prev price	Day change	Day change %	Week change	Week change %	Month change %
CredSuisse	2.90	3.01	-0.11	-3.59	-0.95	-24.7	-26.08
Cielo	4.73	4.76	-0.03	-0.63	-0.51	-9.7	-16.31
Autodesk	191.84	195.35	-3.51	-1.80	-17.06	-8.2	-11.35
Midea	0.34	0.36	-0.02	-5.56	-0.03	-8.1	-6.94
Zoom	71.44	71.59	-0.15	-0.21	-5.71	-7.4	-15.17
NXP	163.88	164.10	-0.22	-0.13	-9.53	-5.5	8.07
Apple	142.11	144.22	-2.12	-1.47	-8.08	-5.4	-8.71
Aptiv	101.53	102.02	-0.49	-0.48	-5.54	-5.2	12.15
Occid Pet	69.13	68.23	0.90	1.32	-3.64	-5.0	-3.73
Illumina	211.23	216.91	-5.69	-2.62	-10.95	-4.9	-9.29
Airbus Grpe	108.60	107.36	1.24	1.15	-5.48	-4.8	-1.18
Schlmbrg	51.10	49.88	1.22	2.44	-2.55	-4.7	1.30
Biogen	293.06	291.90	1.16	0.40	-13.66	-4.5	3.13
VF Cp	32.18	32.41	-0.23	-0.71	-1.49	-4.4	13.88
StateSt	73.22	73.52	-0.30	-0.41	-3.37	-4.4	-2.03
ConocPhil	124.69	123.84	0.85	0.68	-5.29	-4.1	-1.93
ValeroEngy	136.33	134.84	1.49	1.11	-5.65	-4.0	8.20
Citigroup	47.38	47.23	0.15	0.32	-1.95	-4.0	2.67
Qualcomm	119.00	119.54	-0.54	-0.45	-4.65	-3.8	-0.14
Amphenol Corp	77.07	77.82	-0.75	-0.96	-3.01	-3.8	0.84

Based on the FT Global 500 companies in local currency

BONDS: HIGH YIELD & EMERGING MARKET

Nov 29	Red date	Coupon	Ratings S*	Ratings M*	Ratings F*	Bid price	Bid yield	Day's chge yield	Mth's chge yield	Spread vs US
High Yield US$										
HCA Inc.	04/24	8.36	BB-	Ba2	BB	113.75	4.24	0.00	0.12	-
High Yield Euro										
Aldesa Financial Services S.A.	04/21	7.25	-	-	B	71.10	28.23	0.00	0.64	25.98
Emerging US$										
Peru	03/19	7.13	BBB+	A3	BBB+	104.40	2.60	-	-	0.34
Colombia	01/26	4.50	-	Baa2	BBB-	109.50	2.33	0.16	0.52	1.28
Brazil	04/26	6.00	-	Ba2	BB-	115.15	2.78	-0.01	0.65	1.73
Poland	04/26	3.25	-	A2	A-	111.22	0.98	0.03	0.16	-0.07
Mexico	05/26	11.50	-	Baa1	BBB-	149.00	1.61	0.00	-0.12	0.56
Turkey	03/27	6.00	-	Ba2	BB+	101.26	5.82	0.00	0.17	3.07
Turkey	03/27	6.00	-	B2	BB-	102.88	5.43	0.14	0.83	4.38
Peru	08/27	4.13	BBB+	A3	BBB+	103.50	3.66	0.01	-0.02	0.80
Russia	06/28	12.75	-	Baa3	BBB	168.12	2.48	0.07	0.05	-
Brazil	02/47	5.63	-	Ba2	BB-	101.48	5.52	0.08	0.80	-
Emerging Euro										
Brazil	04/21	2.88	BB-	Ba2	BB-	103.09	0.05	0.01	-0.09	-1.19
Mexico	04/23	2.75	BBB+	A3	BBB+	107.76	0.76	0.00	-0.07	-1.56
Mexico	04/23	2.75	-	Baa1	BBB-	106.48	-0.26	-	-	-0.36
Bulgaria	03/28	3.00	BBB-	Baa2	BBB	117.04	1.00	0.02	-0.15	-1.42

Interactive Data Pricing and Reference Data LLC, an ICE Data Services company. US $ denominated bonds NY close; all other London close. *S - Standard & Poor's, M - Moody's, F - Fitch.

BONDS: GLOBAL INVESTMENT GRADE

Nov 29	Red date	Coupon	Ratings S*	Ratings M*	Ratings F*	Bid price	Bid yield	Day's chge yield	Mth's chge yield	Spread vs US
US$										
FleetBoston Financial Corp.	01/28	6.88	BBB+	Baa1	A-	129.00	2.54	-0.01	-0.05	-
The Goldman Sachs Group, Inc.	02/28	5.00	BBB+	A3	A	117.21	2.47	0.00	0.32	-
NationsBank Corp.	03/28	6.80	BBB+	Baa1	A-	127.69	2.72	-0.01	0.06	-
GTE LLC	04/28	6.94	BBB+	Baa2	A-	128.27	2.80	0.00	-0.11	-
United Utilities PLC	08/28	6.88	BBB	Baa1	A-	130.43	2.62	-0.07	-0.22	-
Barclays Bank plc	01/29	4.50	A	A1	A+	96.46	5.02	0.00	0.02	-
Euro										
Electricite de France (EDF)	04/30	4.63	A-	A3	A-	137.45	0.82	-0.01	0.10	-
The Goldman Sachs Group, Inc.	02/31	3.00	BBB+	A3	A	124.42	0.68	0.00	-0.11	-
The Goldman Sachs Group, Inc.	02/31	3.00	BBB+	A3	A	121.70	0.93	0.00	0.02	-
Finland	04/31	0.75	AA+	Aa1	AA+	111.08	-0.27	0.00	-0.05	-0.87
Yen										
Mexico	06/26	1.09	-	Baa1	BBB-	98.73	1.34	-0.02	-0.14	0.27
£ Sterling										
innogy Fin B.V.	06/30	6.25	BBB	Baa2	A-	137.45	2.19	-0.03	0.02	-
innogy Fin B.V.	06/30	6.25	BBB	Baa2	A-	128.68	3.20	0.00	-0.01	0.40

Interactive Data Pricing and Reference Data LLC, an ICE Data Services company. US $ denominated bonds NY close; all other London close. *S - Standard & Poor's, M - Moody's, F - Fitch.

INTEREST RATES: OFFICIAL

Nov 29	Rate	Current	Since	Last
US	Fed Funds	3.00-3.25	21-09-2022	2.25-2.5
US	Prime	6.25	22-09-2022	5.50
US	Discount	3.25	22-09-2022	2.50
Euro	Repo	0.53	01-11-2022	0.374
UK	Repo	3.00	02-11-2022	2.25
Japan	O'night Call	0.00-0.10	01-02-2016	0.00
Switzerland	Libor Target	-1.25-0.25	15-01-2015	-0.75--0.25

INTEREST RATES: MARKET

Nov 29 (Libor: Nov 28)	Over night	Change Day	Change Week	Change Month	One month	Three month	Six month	One year
US$ Libor	3.81643	0.004	0.004	0.017	4.07143	4.73486	5.21043	5.57214
Euro Libor	-0.64957	-0.064	0.000	0.001	-0.61943	-0.58057	-0.55600	-0.48571
£ Libor	0.18063	-0.005	0.000	0.017	3.20670	3.65540	4.21620	0.81363
Swiss Fr Libor				-0.002	-0.77540	-0.75300	-0.70280	-0.55320
Yen Libor				0.000	-0.06005	-0.04713	0.03052	0.04867
Euro Euribor				0.016	1.49200	1.95400	2.43600	2.89200
Sterling CDs				0.000	0.50000	0.63000	0.78500	
US$ CDs				0.040	4.14000	4.66000	5.08000	
Euro CDs				-0.170	1.36000	1.85000	2.27000	

Nov 29	Short term		7 Days notice		One month		Three month		Six month		One year	
Euro	1.13	1.43	1.15	1.45	1.21	1.51	1.70	2.00	2.12	2.42	2.44	2.74
Sterling					0.45	0.55	0.58	0.68	0.71	0.86	0.90	1.05
US Dollar	3.63	3.83	3.65	3.85	4.04	4.24	4.56	4.76	4.98	5.18	5.23	5.43
Japanese Yen	-0.15	0.05	-0.20	0.00	-0.20	0.00	-0.15	0.05	-0.10	0.20	-0.05	0.25

Libor rates come from ICE (see www.theice.com) and are fixed at 11am UK time. Other data sources: US $, Euro & CDs: Tullett Prebon; SDR, US Discount: IMF; EONIA: ECB; Swiss Libor: SNB; EURONIA, RONIA & SONIA: WMBA.

BOND INDICES

	Index	Day's change	Month's change	Year change	Return 1 month	Return 1 year
Markit IBoxx						
ABF Pan-Asia unhedged	196.22	-0.36	4.83	-10.72	4.39	-9.88
Corporates(£)	330.12	0.04	4.65	-16.59	4.15	-17.49
Corporates(€)	210.48	0.01	2.59	-12.86	2.48	-12.87
Eurozone Sov(€)	216.63	-0.12	2.00	-14.85	1.32	-16.04
Gilts(£)	284.19	0.02	3.77	-20.94	2.64	-22.89
Overall(£)	291.03	0.02	3.78	-19.60	2.83	-21.30
Overall(€)	211.26	-0.07	2.11	-14.36	1.59	-15.25
FTSE						
Sterling Corporate (£)	-	-	-	-	-	-
Euro Corporate (€)	104.47	-0.05	-	-	0.54	-1.73
Euro Emerging Mkts (€)	685.23	5.04	-	-	14.88	-13.08
Eurozone Govt Bond	110.04	-0.19	-	-	-0.34	-0.64

CREDIT INDICES

	Index	Day's change	Week's change	Month's change	Series high	Series low
Markit iTraxx						
Crossover 5Y	459.35	-4.30	-2.02	-84.88	688.92	438.73
Europe 5Y	91.00	-0.99	-1.30	-20.55	142.08	86.90
Japan 5Y	80.75	0.83	-3.50	-24.17	119.29	79.45
Senior Financials 5Y	100.44	-1.62	-1.41	-20.25	155.06	96.21
Markit CDX						
Emerging Markets 5Y	241.70	10.07	-10.90	-54.84	335.29	231.63
Nth Amer High Yld 5Y	481.86	21.46	2.05	-38.30	625.47	456.61
Nth Amer Inv Grade 5Y	82.02	4.02	0.57	-8.25	110.98	77.48

Websites: markit.com, ftse.com. All indices shown are unhedged. Currencies are shown in brackets after the index names.

VOLATILITY INDICES

	Nov 29	Day Chng	Prev	52 wk high	52 wk low
VIX	22.18	-0.03	22.21	38.93	16.62
VXD	21.68	0.19	21.49	45.37	3.27
VXN	28.61	0.30	28.31	44.05	9.94
VDAX	21.97	0.17	21.80	93.30	-

† CBOE. VIX: S&P 500 index Options Volatility, VXD: DJIA Index Options Volatility, VXN: NASDAQ Index Options Volatility. ‡ Deutsche Borse. VDAX: DAX Index Options Volatility.

BONDS: BENCHMARK GOVERNMENT

	Red Date	Coupon	Bid Price	Bid Yield	Day chg yield	Wk chg yield	Month chg yld	Year chg yld
Australia	-	-	-	-	-	-	-	-
	05/32	1.25	81.95	3.51	-0.06	-0.07	-0.22	-
	02/50	1.00	98.38	1.53	-0.12	-0.18	-0.19	1.23
Austria	02/29	0.50	89.10	2.41	0.00	-0.01	-0.15	2.67
	02/47	1.50	80.75	2.58	0.00	-0.11	-0.28	2.16
Belgium	06/27	0.80	93.70	2.27	0.01	0.06	0.05	2.72
	06/47	1.60	78.93	2.80	0.02	-0.07	-0.24	2.09
Canada	03/25	1.25	94.51	3.82	0.04	-0.04	0.03	2.64
	06/30	1.25	88.67	2.94	0.04	-0.12	-0.28	1.46
	12/48	2.75	95.46	3.00	0.03	-0.18	-0.36	1.06
Denmark	11/29	0.50	89.04	2.22	-0.02	-0.03	-0.18	2.41
	11/52	0.25	62.08	1.93	0.00	-0.14	-0.43	1.70
Finland	09/24	0.00	96.15	2.21	0.03	0.09	0.26	2.92
	09/29	0.50	87.90	2.46	0.02	0.00	-0.12	2.72
France	05/28	0.75	92.18	2.28	0.01	0.04	0.00	2.62
	05/48	2.00	87.03	2.71	0.02	-0.07	-0.24	2.06
Germany	08/29	0.00	87.85	1.95	0.01	0.02	-0.03	2.44
	08/50	0.00	60.78	1.81	0.01	-0.10	-0.25	1.83
Greece	01/23	3.50	100.33	1.47	0.14	0.11	0.39	1.75
	01/28	3.75	101.65	3.39	0.06	-0.23	-0.67	2.70
Ireland	-	-	-	-	-	-	-	-
	05/26	1.00	96.12	2.18	-0.01	0.03	0.12	2.64
	02/45	2.00	88.33	2.71	0.02	-0.07	-0.26	2.10
Italy	02/25	0.35	94.88	2.80	0.07	0.05	0.03	2.92
	05/30	0.40	92.44	1.47	0.03	-0.03	-0.09	2.14
	03/48	3.45	93.04	3.88	0.05	-0.05	-0.30	2.14
Japan	04/25	0.05	99.95	0.07	0.00	0.00	0.03	0.00
	12/29	0.10	99.38	0.19	0.00	0.03	0.00	0.21
	12/49	0.40	78.01	1.38	0.01	0.03	0.00	0.71
Netherlands	07/27	0.75	94.06	2.11	0.00	0.03	0.01	2.63
	01/47	2.75	111.95	2.11	0.01	-0.10	-0.34	2.05
New Zealand	05/31	1.50	81.64	4.09	-0.08	-0.08	-0.15	1.63
	09/40	2.50	120.97	2.27	-0.08	-0.06	-0.11	1.45
Norway	08/30	1.38	87.71	3.20	0.03	-0.04	-0.41	1.61
Poland	01/23	2.50	99.32	7.02	-0.08	0.10	-0.37	4.53
	07/27	2.50	82.40	7.07	-0.09	-0.24	-1.28	3.81
	04/47	4.00	60.15	7.65	0.00	0.30	-0.88	4.13
Portugal	04/27	4.13	107.18	2.37	0.02	0.05	-0.02	2.65
Spain	-	-	-	-	-	-	-	-
	10/29	0.60	87.04	2.68	0.03	0.02	-0.10	2.53
	10/46	2.90	94.93	3.21	0.02	-0.07	-0.27	2.10
Sweden	06/30	0.13	117.16	-0.26	0.00	-0.02	-0.12	1.64
	03/39	3.50	123.03	1.85	0.04	-0.04	-0.19	1.38
Switzerland	04/28	4.00	115.88	0.94	-0.02	0.08	0.05	1.37
	06/29	0.00	93.93	0.96	-0.02	0.06	-0.01	1.30
United Kingdom	07/23	0.75	98.45	3.19	0.02	0.07	0.23	2.84
	07/27	1.25	91.41	3.26	-0.04	-0.02	-0.29	2.70
	07/47	1.50	68.01	3.43	0.00	0.02	-0.20	2.45
United States	-	-	-	-	-	-	-	-
	03/25	0.50	91.58	4.33	-0.01	-0.05	-0.01	3.41
	02/30	1.50	85.97	3.74	0.00	-0.11	-0.31	2.31
	02/50	0.25	70.13	1.61	0.04	-0.10	-0.17	-

Interactive Data Pricing and Reference Data LLC, an ICE Data Services company.

GILTS: UK CASH MARKET

Nov 29	Price £	Red Yield	Change in Yield Day	Change in Yield Week	Change in Yield Month	Change in Yield Year	52 Week High	52 Week Low	Amnt £m
	-	-	-	-	-	-	-	-	-
Tr 0.75pc '23	98.52	3.09	-1.28	2.32	6.55	735.14	100.82	97.34	34.36
Tr 0.125pc '24	96.42	3.27	-1.21	2.83	5.14	581.25	99.44	94.34	35.55
Tr 2pc '25	97.05	3.12	-0.64	1.96	-1.58	488.68	105.86	93.15	39.93
Tr 0.125pc '26	91.20	3.06	-1.29	0.33	-8.38	466.67	98.77	86.33	35.32
Tr 1.25pc '27	91.67	3.20	-0.93	-0.31	-9.35	442.37	104.30	85.65	40.99
Tr 0.875pc '29	86.18	3.12	-0.95	-0.95	-11.61	339.44	102.36	78.21	43.62
Tr 4.25pc '32	109.58	3.08	-0.65	-1.91	-11.75	254.02	135.62	98.13	40.33
Tr 4.25pc '36	109.54	3.35	-0.89	-1.47	-10.43	245.36	145.94	94.91	31.68
Tr 4.5pc '42	115.20	3.44	-0.58	-0.86	-9.47	240.59	169.96	93.79	28.35
Tr 3.75pc '52	107.40	3.35	0.00	0.90	-7.46	256.38	180.27	82.51	25.11
Tr 4pc '60	118.02	3.17	0.63	1.93	-8.65	291.36	213.01	87.32	25.13

Gilts benchmarks & non-rump undated stocks. Closing mid-price in pounds per £100 nominal of stock.

GILTS: UK FTSE ACTUARIES INDICES

Price Indices Fixed Coupon	Nov 29	Day's chg %	Total Return	Return 1 month	Return 1 year	Yield
1 Up to 5 Years	81.88	0.09	2355.27	0.79	-4.33	3.19
2 5 - 10 Years	151.01	0.17	3213.88	3.20	-13.22	3.14
3 10 - 15 Years	165.18	0.23	3795.24	4.94	-19.57	3.33
4 5 - 15 Years	153.57	0.19	3354.42	3.68	-15.22	3.21
5 Over 15 Years	237.70	-0.03	4092.73	6.17	-36.05	3.30
7 All stocks	141.98	0.08	3171.23	3.62	-21.60	3.27

Index Linked	Nov 29	Day's chg %	Month chg %	Year's chg %	Total Return	Return 1 month	Return 1 year
1 Up to 5 Years	325.47	0.02	0.22	2.78	2752.13	0.48	3.97
2 Over 5 years	582.78	-0.27	4.95	-37.13	4442.06	5.09	-36.85
3 5-15 years	465.20	-0.01	4.58	-15.10	3762.44	4.75	-14.45
4 Over 15 years	675.20	-0.43	5.03	-45.62	4996.40	5.15	-45.45
5 All stocks	546.37	-0.22	4.23	-33.16	4248.51	4.39	-32.80

Yield Indices	Nov 29	Nov 28	Yr ago		Nov 29	Nov 28	Yr ago
5 Yrs	3.08	3.10	0.55	20 Yrs	3.45	3.47	1.05
10 Yrs	3.24	3.26	0.85	45 Yrs	3.03	3.01	0.69
15 Yrs	3.41	3.43	1.02				

Real yield	inflation 0% Nov 29	inflation 0% Dur yrs	inflation 0% Previous	inflation 0% Yr ago	inflation 5% Nov 29	inflation 5% Dur yrs	inflation 5% Previous	inflation 5% Yr ago
Up to 5 yrs	-0.24	2.82	-0.23	-3.68	-0.60	2.83	-0.60	-4.10
Over 5 yrs	0.06	20.37	0.04	-2.58	0.03	20.43	0.01	-2.60
5-15 yrs	-0.13	9.77	-0.13	-3.10	-0.22	9.78	-0.23	-3.19
Over 15 yrs	0.10	26.94	0.09	-2.51	0.09	26.95	0.07	-2.53
All stocks	0.05	17.62	0.04	-2.59	0.01	17.71	0.00	-2.61

See FTSE website for more details www.ftse.com/products/indices/gilts
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COMMODITIES

www.ft.com/commodities

Energy		Price*	Change	Agricultural & Cattle Futures		Price*	Change
Crude Oil†	Jan	78.42	1.18	Corn♦	Dec	667.50	-1.25
Brent Crude Oil‡		84.71	0.82	Wheat♦	Dec	754.50	-2.25
RBOB Gasoline†	Jan	2.31	0.04	Soybeans♦	Jan	1458.75	1.50
Natural Gas†	Jan	7.17	-0.02	Soybeans Meal♦	Dec	407.70	-5.90
Base Metals (♠ LME 3 Months)				Cocoa (ICE Liffe)✠	Dec	2131.00	15.00
Aluminium		2378.00	4.00	Cocoa (ICE US)♥	Dec	2446.00	9.00
Aluminium Alloy		1675.00	-905.00	Coffee(Robusta)✠	Jan	1863.00	8.00
Copper		8040.50	60.50	Coffee (Arabica)♥	Dec	160.90	-2.65
Lead		2144.00	33.00	White Sugar✠		533.70	5.10
Nickel		27040.00	1440.00	Sugar 11♥		19.07	-0.31
Tin		22680.00	330.00	Cotton♥	Dec	80.05	-1.29
Zinc		2956.00	12.00	Orange Juice♥	Jan	206.40	-0.25
Precious Metals (PM London Fix)				Live Cattle♣	Dec	152.53	-0.55
Gold		1746.55	-5.30	Feeder Cattle♣	May	134.88	-
Silver (US cents)		2147.50	14.00	Lean Hogs♣	Dec	81.00	-2.78
Platinum		1000.00	21.00				
Palladium		1855.00	43.00		Nov 28	% Chg Month	% Chg Year
Bulk Commodities							
Iron Ore		100.44	1.51	S&P GSCI Spt	609.32	-4.27	12.33
Baltic Dry Index		1327.00	-20.00	DJ UBS Spot	115.05	2.96	16.56
Richards Bay ICE Futures		234.90	33.90	TR/CC CRB TR	294.96	0.47	22.39
				LEBA EUA Carbon	58.91	-1.98	129.94
				LEBA UK Power	1048.00	-37.43	-39.60

Sources: † NYMEX, ‡ ECX/ICE, ♦ CBOT, ✠ ICE Liffe, ♥ ICE Futures, ♣ CME, ♠ LME/London Metal Exchange.* Latest prices, $ unless otherwise stated.

BONDS: INDEX-LINKED

	Price Nov 28	Yield Nov 28	Yield Prev	Month return	Value stock	Market	No of stocks
Can 4.25%' 26	111.30	1.339	1.287	0.40	5.25	73702.78	8
Fr 0.25%' 24	102.97	-1.509	-1.518	0.80	17.92	254370.00	17
Swe 1.00%' 25	125.61	-0.228	-0.262	0.95	35.38	220197.19	6
UK 0.125%' 24	104.11	-2.925	-2.931	0.23	15.24	601133.07	31
UK 2.50%' 24	377.77	-2.054	-2.070	0.33	6.82	601133.07	31
UK 2.00%' 35	255.25	-0.358	-0.383	6.36	9.08	601133.07	31
US 0.625%' 24	97.77	2.648	2.641	-0.35	40.98	1604368.05	47
US 3.625%' 28	109.68	1.731	1.695	0.60	16.78	1604368.05	47

Representative stocks from each major market Source: Merill Lynch Global Bond Indices † Local currencies. ‡ Total market value. In line with market convention, for UK Gilts inflation factor is applied to price, for other markets it is applied to par amount.

BONDS: TEN YEAR GOVT SPREADS

	Bid Yield	Spread vs Bund	Spread vs T-Bonds		Bid Yield	Spread vs Bund	Spread vs T-Bonds
Australia	3.51	1.55	-0.23	Netherlands	2.11	0.16	-1.63
Austria	2.41	0.46	-1.33	New Zealand	4.09	2.14	0.35
Canada	2.94	0.99	-0.80	Norway	3.20	1.25	-0.54
Denmark	2.22	0.27	-1.52	Portugal	2.37	0.42	-1.37
Finland	2.46	0.51	-1.28	Spain	2.68	0.73	-1.06
Germany	1.95	0.00	-1.79	Sweden	-0.26	-2.21	-4.00
Italy	1.47	-0.48	-2.27	Switzerland	0.96	-0.99	-2.78
Japan	0.19	-1.76	-3.55	United States	3.74	1.79	0.00

Interactive Data Pricing and Reference Data LLC, an ICE Data Services company.

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MANAGED FUNDS SERVICE

abrdn Capital (CI) Limited (JER)
PO Box 189, St Helier, Jersey, JE4 9RU 01534 709130
FCA Recognised
abrdn Capital Offshore Strategy Fund Limited

Fund	Bid	Offer	D+/-	Yield
Bridge Fund	£ 2.1785	-	0.0020	1.91
Global Equity Fund	£ 3.2418	-	-0.0083	1.21
Global Fixed Interest Fund	£ 0.7441	-	-0.0002	5.66
Income Fund	£ 0.6303	-	0.0011	3.31
Sterling Fixed Interest Fund	£ 0.6913	-	0.0011	3.75
UK Equity Fund	£ 1.9855	-	0.0123	3.79

Algebris Investments (IRL)
Regulated

Fund	Bid	Offer	D+/-	Yield
Algebris Financial Credit I EUR	€ 172.84	-	-0.43	-
Algebris Financial Credit R EUR	€ 148.72	-	-0.38	-
Algebris Financial Credit Rd EUR	€ 91.00	-	-0.23	-
Algebris Financial Income I EUR	€ 177.49	-	-1.12	0.00
Algebris Financial Income R EUR	€ 161.53	-	-1.03	0.00
Algebris Financial Income Rd EUR	€ 99.00	-	-0.63	4.41
Algebris Financial Equity B EUR	€ 159.46	-	-2.03	0.00
Algebris Financial Equity R EUR	€ 134.13	-	-1.72	0.00
Algebris IG Financial Credit I EUR	€ 95.17	-	-0.08	-
Algebris IG Financial Credit R EUR	€ 93.71	-	-0.08	-
Algebris Global Credit Opportunities I EUR	€ 123.75	-	-0.34	-
Algebris Global Credit Opportunities R EUR	€ 120.81	-	-0.34	-
Algebris Global Credit Opportunities Rd EUR	€ 106.20	-	-0.30	-
Algebris Core Italy I EUR	€ 141.17	-	-0.61	0.00
Algebris Core Italy R EUR	€ 134.02	-	-0.59	0.00

The Antares European Fund Limited
Other International

Fund	Bid	Offer	D+/-	Yield
AEF Ltd Usd	$ 546.85	-	16.39	0.00
AEF Ltd Eur	€ 504.72	-	14.66	0.00

Artemis Fund Managers Ltd (1200)F (UK)
57 St. James's Street, London SW1A 1LD 0800 092 2051
Authorised Inv Funds

Fund	Bid	Offer	D+/-	Yield
Artemis Corporate Bond I Acc	98.53	-	-0.63	3.02
Artemis Positive Future Fund	67.95	-	-0.18	0.00
Artemis Target Return Bond I Acc	104.36	-	0.04	2.84

Ashmore Group
61 Aldwych, London WC2B 4AE. Dealing team: +352 27 62 22 233
Authorised Inv Funds

Fund	Bid	Offer	D+/-	Yield
Emerging Markets Equity Fund	$ 111.05	-	-1.28	0.00
Emerging Markets Equity ESG Fund	$ 125.53	-	-1.53	0.00
Emerging Markets Frontier Equity Fund	$ 175.11	-	-0.44	0.40
Emerging Markets Blended Debt Fund	$ 51.46	-	0.30	6.88
Emerging Markets Blended Debt ESG Fund	$ 82.15	-	0.26	0.00
Emerging Markets Active Equity Fund	$ 114.03	-	-1.00	0.00
Emerging Markets Corporate Debt Fund	$ 58.32	-	0.09	9.89
Emerging Markets Debt Fund	$ 56.40	-	0.33	8.44
Emerging Markets Local Currency Bond Fund	$ 59.39	-	0.14	4.44

Atlantas Sicav (LUX)
Regulated

Fund	Bid	Offer	D+/-	Yield
American Dynamic	$ 6382.24	-	-60.62	0.00
American One	$ 6595.34	-	-28.60	0.00
Bond Global	€ 1581.48	1581.48	10.04	0.00
Eurocroissance	€ 1316.58	-	5.30	0.00
Far East	$ 968.99	-	29.71	-

Blue Whale Investment Funds ICAV (IRE)
www.bluewhale.co.uk, info@bluewhale.co.uk
FCA Recognised - Ireland UCITS

Fund	Bid	Offer	D+/-	Yield
Blue Whale Growth USD T	$ 8.70	-	-0.11	0.00

Brooks Macdonald International Fund Managers Limited (JER)
5 Anley Street, St Helier, Jersey, JE2 3QE
+44 (0) 1534 700 104 (Int.) +44 (0) 800 735 8000 (UK)
Brooks Macdonald International Investment Funds Limited

Fund	Bid	Offer	D+/-	Yield
Euro High Income	€ 1.2289	-	0.0039	2.50
High Income	£ 0.6628	-	0.0004	3.77
Sterling Bond	£ 1.2619	-	0.0011	2.06

Brooks Macdonald International Multi Strategy Fund Limited

Fund	Bid	Offer	D+/-	Yield
Balanced Strategy A	£ 0.9115	-	-0.0011	0.60
Balanced Strategy	£ 0.9107	-	-0.0011	0.09
Cautious Balanced Strategy A	£ 0.8872	-	-0.0001	1.16
Growth Strategy A	£ 0.9154	-	-0.0017	0.52
High Growth Strategy A	£ 0.9096	-	-0.0016	0.13
Cautious Balanced Strategy	£ 1.2409	-	-0.0001	0.00
Growth Strategy	£ 1.9157	-	-0.0035	0.00
High Growth Strategy	£ 2.6676	-	-0.0048	0.00
US$ Growth Strategy	$ 1.6302	-	-0.0116	0.00

Dealing Daily. Initial Charge Nil for A classes and up to 2% for other classes

CG Asset Management Limited (IRL)
25 Moorgate, London, EC2R 6AY
Dealing: Tel. +353 1434 5098 Fax. +353 1542 2859
FCA Recognised
CG Portfolio Fund Plc

Fund	Bid	Offer	D+/-	Yield
Absolute Return Cls M Inc	£ 135.63	135.63	-0.10	1.36
Capital Gearing Portfolio GBP P	£ 37387.27	37387.27	-20.04	1.05
Capital Gearing Portfolio GBP V	£ 181.83	181.83	-0.10	1.05
Dollar Fund Cls D Inc	£ 166.65	166.65	0.16	1.42
Dollar Hedged GBP Inc	£ 93.05	93.05	-0.31	1.71
Real Return Cls A Inc	£ 200.32	200.32	0.30	1.46

Chartered Asset Management Pte Ltd
Other International Funds

Fund	Bid	Offer	D+/-	Yield
CAM-GTF VCC	$ 276934.95	276934.95	-141.90	-
CAM GTi VCC	$ 780.49	-	-32.39	-
RAIC VCC	$ 1.64	1.64	0.03	2.06

Dodge & Cox Worldwide Funds (IRL)
48-49 Pall Mall, London SW1Y 5JG.
www.dodgeandcox.worldwide.com 020 3713 7664
FCA Recognised
Dodge & Cox Worldwide Funds plc - Global Bond Fund

Fund	Bid	Offer	D+/-	Yield
EUR Accumulating Class	€ 15.91	-	0.08	0.00
EUR Accumulating Class (H)	€ 10.24	-	-0.02	-
EUR Distributing Class	€ 11.66	-	0.06	0.96
EUR Distributing Class (H)	€ 7.45	-	-0.01	-
GBP Distributing Class	£ 12.36	-	0.13	0.87
GBP Distributing Class (H)	£ 7.96	-	-0.01	1.16
USD Accumulating Class	$ 11.86	-	-0.02	0.00

Dodge & Cox Worldwide Funds plc-Global Stock Fund

Fund	Bid	Offer	D+/-	Yield
USD Accumulating Share Class	$ 28.13	-	-0.37	-
GBP Accumulating Share Class	£ 38.73	-	-0.04	0.00
GBP Distributing Share class	£ 26.14	-	-0.03	-
EUR Accumulating Share Class	€ 40.88	-	-0.27	-
GBP Distributing Class (H)	£ 13.07	-	-0.17	0.57

Dodge & Cox Worldwide Funds plc-U.S. Stock Fund

Fund	Bid	Offer	D+/-	Yield
USD Accumulating Share Class	$ 38.16	-	-0.58	0.00
GBP Accumulating Share Class	£ 49.69	-	-0.15	-
GBP Distributing Share Class	£ 29.83	-	-0.09	0.16
EUR Accumulating Share Class	€ 47.89	-	-0.40	0.00
GBP Distributing Class (H)	£ 15.16	-	-0.23	0.20

Dragon Capital
www.dragoncapital.com
Fund information:info@dragoncapital.com
Other International Funds

Fund	Bid	Offer	D+/-	Yield
Vietnam Equity (UCITS) Fund A USD	$ 22.55	-	0.84	0.00

EdenTree Investment Management Ltd (UK)
PO Box 3733, Swindon, SN4 4BG, 0800 358 3010
Authorised Inv Funds

Fund	Bid	Offer	D+/-	Yield
EdenTree Short Dated Bond Cls B	93.20	-	0.13	-

Euronova Asset Management UK LLP (CYM)
Regulated

Fund	Bid	Offer	D+/-	Yield
Smaller Cos Cls One Shares	€ 51.85	-	-1.39	0.00
Smaller Cos Cls Two Shares	€ 33.10	-	-0.89	0.00
Smaller Cos Cls Three Shares	€ 16.52	-	-0.44	0.00
Smaller Cos Cls Four Shares	€ 21.77	-	-0.59	0.00

Fidelity Investments International
Other International Funds

Fund	Bid	Offer	D+/-	Yield
Emerging Mkts NAV	£ 7.21	-	-0.16	2.07

FIL Investment Services (UK) Limited (1200)F (UK)
Beech Gate, Millfield Lane, Lower Kingswood, Tadworth, KT20 6RP
Callfree: Private Clients 0800 414161
Broker Dealings: 0800 414 181
OEIC Funds

Fund	Bid	Offer	D+/-	Yield
Index Sterling Corporate Bond Fund P-ACC-GBP	£ 0.84	-	0.01	2.03
Sustainable Multi Asset Balanced Fund W-ACC-GBP	£ 0.92	-	0.00	0.15
American Fund W-ACC-GBP	£ 51.40	-	-0.10	0.00
Cash Fund W-ACC-GBP	£ 1.03	-	0.00	0.00
Emerg Europe, Middle East and Africa Fund W-ACC-GBP	£ 1.66	-	0.01	4.94
Sustainable Global Equity Fund W-ACC-GBP	£ 32.54	-	-0.09	0.00
Global High Yield Fund W-ACC-GBP	£ 13.50	-	-0.01	5.84
Japan Fund W-ACC-GBP	£ 5.59	-	0.01	-
Japan Smaller Companies Fund W-ACC-GBP	£ 3.56	-	0.01	0.64
Select 50 Balanced Fund PI-ACC-GBP	£ 1.13	-	0.00	1.04
Special Situations Fund W-ACC-GBP	£ 42.49	-	0.02	2.08
Short Dated Corporate Bond Fund W-ACC-GBP	£ 10.45	-	0.01	-
Sustainable Water & Waste W-ACC-GBP	£ 1.13	-	0.00	0.15
Sustainable Water & Waste W-INC-GBP	£ 1.12	-	0.00	0.15
UK Select Fund W-ACC-GBP	£ 3.67	-	0.01	2.13
Global Enhanced Income W-ACC-GBP	£ 2.31	-	0.01	4.29
Index UK Gilt Fund P-ACC-GBP	£ 0.77	-	0.00	0.59
Sustainable Multi Asset Conservative Fund W-ACC-GBP	£ 0.90	-	0.01	0.16
Sustainable Multi Asset Growth Fund W-ACC-GBP	£ 0.95	-	0.01	0.08

Findlay Park Funds Plc (IRL)
30 Herbert Street, Dublin 2, Ireland Tel: 020 7968 4900
FCA Recognised

Fund	Bid	Offer	D+/-	Yield
American EUR Unhedged Class	€ 153.13	-	-2.45	0.00
American Fund USD Class	$ 159.21	-	-2.69	0.00
American Fund GBP Hedged	£ 78.25	-	-1.33	0.00
American Fund GBP Unhedged	£ 132.24	-	-1.61	0.00

Foord Asset Management
Website: www.foord.com - Email: info@foord.com
FCA Recognised - Luxembourg UCITS

Fund	Bid	Offer	D+/-	Yield
Foord International Fund | R	$ 48.17	-	-0.28	0.00
Foord Global Equity Fund (Lux) | R	$ 15.26	-	-0.18	0.00

Regulated

Fund	Bid	Offer	D+/-	Yield
Foord Global Equity Fund (Sing) | B	$ 18.19	-	-0.22	0.00
Foord International Trust (Gsy)	$ 46.95	-	-0.27	0.00

GAM
funds@gam.com, www.funds.gam.com
Regulated

Fund	Bid	Offer	D+/-	Yield
LAPIS GBL TOP 50 DIV.YLD-Na-D	£ 126.68	-	-1.01	-
LAPIS GBL F OWD 50 DIV.YLD-Na-D	£ 99.28	-	-0.52	-

Guinness Global Investors

Fund	Bid	Offer	D+/-	Yield
Guinness Global Equity Income Y GBP Dist	£ 18.85	-	-0.13	2.34
Guinness Global Innovators Y GBP Acc	£ 24.65	-	-0.33	0.00
Guinness Sustainable Global Equity Y GBP Acc	£ 11.12	-	-0.14	0.00

HPB Assurance Ltd
Anglo Intl House, Bank Hill, Douglas, Isle of Man, IM1 4LN 01638 563490
International Insurances

Fund	Bid	Offer	D+/-	Yield
Holiday Property Bond Ser 1	£ 0.48	-	0.00	0.00
Holiday Property Bond Ser 2	£ 0.63	-	0.00	0.00

Janus Henderson Investors (UK)
PO Box 9023, Chelmsford, CM99 2WB Enquiries: 0800 832 832
www.janushenderson.com
Authorised Inv Funds

Fund	Bid	Offer	D+/-	Yield
Janus Henderson Instl UK Idx Opps A Acc	£ 1.12	-	0.01	3.13

M & G Securities (1200)F (UK)
PO Box 9038, Chelmsford, CM99 2XF
www.mandg.co.uk/charities Enq./Dealing: 0800 917 4472
Authorised Inv Funds

Fund	Bid	Offer	D+/-	Yield
M&G Charibond Charities Fixed Interest Fund (Charibond) Inc	£ 1.11	-	0.01	2.03
M&G Charibond Charities Fixed Interest Fund (Charibond) Acc	£ 39.41	-	0.10	1.62
M&G Charity Multi Asset Fund Inc	£ 0.89	-	0.01	3.89
M&G Charity Multi Asset Fund Acc	£ 106.30	-	0.56	3.74

MMIP Investment Management Limited (GSY)
Regulated
Multi-Manager Investment Programmes PCC Limited

Fund	Bid	Offer	D+/-	Yield
UK Equity Fd Cl A Series 01	£ 2810.68	2842.19	142.84	0.00
Diversified Absolute Rtn Fd USD Cl AF2	$ 1588.98	-	5.05	-
Diversified Absolute Return Stlg Cell AF2	£ 1474.75	-	6.33	-
Global Equity Fund A Lead Series	£ 1721.66	1727.57	67.75	0.00

Marwyn Asset Management Limited (CYM)
Regulated

Fund	Bid	Offer	D+/-	Yield
Marwyn Value Investors	£ 329.72	-	-6.14	0.00

Milltrust International Managed Investments ICAV (IRL)
mimi@milltrust.com, +44(0)20 8123 8316 www.milltrust.com
Regulated

Fund	Bid	Offer	D+/-	Yield
British Innovation Fund	£ 121.92	-	2.89	0.00
MAI - Buy & Lease (Australia)	A$ 103.45	-	0.50	0.00
MAI - Buy & Lease (New Zealand)	NZ$ 91.20	-	-6.06	0.00
Milltrust Global Emerging Markets Fund - Class A	$ 90.24	-	0.70	0.00

Milltrust International Managed Investments SPC
em@milltrust.com, +44(0)20 8123 8316, www.milltrust.com
Regulated

Fund	Bid	Offer	D+/-	Yield
Milltrust Alaska Brazil SP A	$ 75.78	-	0.38	0.00
Milltrust Laurium Africa SP A	$ 103.38	-	-0.31	0.00
Milltrust Marcellus India Fund	$ 129.39	-	-0.04	0.00
Milltrust Singular ASEAN SP Founders	$ 129.34	-	-0.44	0.00
Milltrust SPARX Korea Equity SP A	$ 100.03	-	-2.41	0.00
Milltrust Xingtai China SP A	$ 90.28	-	-1.14	0.00
The Climate Impact Asia Fund SP (Class A)	$ 74.91	-	-0.56	0.00
The Climate Impact Asia Fund (Class B)	$ 74.32	-	-0.55	0.00

Mirabaud Asset Management (LUX)
www.mirabaud.com, marketing@mirabaud-am.com
Conviction based investment vehicles details available here www.mirabaud-am.com
Regulated

Fund	Bid	Offer	D+/-	Yield
Mir. - Glb Strat. Bd I USD	$ 114.70	-	-0.22	-
Mir. - DiscEur D Cap GBP	£ 164.67	-	-1.07	0.00
Mirabaud - UK Equity High Alpha	£ 137.56	-	-1.23	0.00

Oasis Crescent Global Investment Funds (UK) ICVC (UK)
Regulated

Fund	Bid	Offer	D+/-	Yield
Oasis Crescent Global Equity Fund USD A (Dist)	$ 34.34	-	0.32	0.25
Oasis Crescent Global Income Fund USD A (Dist)	$ 9.99	-	0.00	2.74
Oasis Crescent Global Low Equity Fund USD D (Dist)	$ 12.15	-	-0.03	0.62
Oasis Crescent Global Medium Equity Fund USD A (Dist)	$ 13.47	-	-0.05	0.15
Oasis Crescent Global Property Equity Fund USD A (Dist)	$ 7.65	-	-0.16	0.98
Oasis Crescent Global Short Term Income Fund USD A (Dist)	$ 0.94	-	0.00	1.87
Oasis Crescent Variable Fund GBP A (Dist)	£ 9.67	-	0.01	0.18

Omnia Fund Ltd
Other International Funds

Fund	Bid	Offer	D+/-	Yield
Estimated NAV	$ 946.10	-	-9.48	0.00

Orbis Investments (U.K.) Limited (GBR)
28 Dorset Square, London, NW1 6QG
www.orbis.com 0800 358 2030
Regulated

Fund	Bid	Offer	D+/-	Yield
Orbis OEIC Global Cautious Standard	£ 11.73	-	-0.02	0.00
Orbis OEIC Global Balanced Standard	£ 19.01	-	-0.10	-
Orbis OEIC Global Equity Standard	£ 21.54	-	-0.07	1.99
Orbis OEIC UK Equity Standard	£ 11.16	-	-0.08	3.45

Platinum Capital Management Ltd
Other International Funds

Fund	Bid	Offer	D+/-	Yield
Platinum All Star Fund - A	$ 141.55	-	-	-
Platinum Global Growth UCITS Fund	$ 8.25	-	-0.01	0.00
Platinum Essential Resources UCITS Fund SICAV USD Class E	$ 11.87	-	-0.03	0.00
Platinum Global Dividend UCITS Fund	$ 48.80	-	0.05	0.00

Polar Capital Funds Plc (IRL)
Regulated

Fund	Bid	Offer	D+/-	Yield
Automation & Artificial Intelligence CL I USD Acc	$ 14.27	14.27	-0.19	0.00
Asian Starts I USD Acc $	$ 13.53	-	-0.15	0.00
Biotechnology I USD	$ 37.36	37.36	-0.10	0.00
China Stars I USD Acc $	$ 9.94	9.94	-0.07	0.00
Emerging Market Stars I USD Acc	$ 10.75	-	-0.13	0.00
European Ex UK Inc EUR Acc	€ 14.06	14.06	-0.09	-
Financial Opps I USD	$ 13.70	-	-0.18	2.74
Global Convertible I USD	$ 13.42	13.42	-0.11	0.00
Global Insurance I GBP	£ 10.07	-	-0.08	0.00
Global Technology I USD	$ 61.28	-	-0.96	0.00
Healthcare Blue Chip Fund I USD Acc	$ 18.18	18.18	-0.07	0.00
Healthcare Dis I Acc USD $	$ 11.76	-	-0.06	-
Healthcare Opps I USD	$ 63.95	-	-0.07	-
Income Opportunities B2 I GBP Acc	£ 2.91	2.91	-0.01	0.00
Japan Value I JPY	¥ 142.76	142.76	-0.57	0.00
North American I USD	$ 32.42	32.42	-0.52	0.00
Smart Energy I USD Acc $	$ 9.06	9.06	-0.20	0.00
Smart Mobility I USD Acc $	$ 8.48	8.48	-0.16	0.00
UK Val Opp I GBP Acc	£ 12.01	12.01	0.06	0.00

Private Fund Mgrs (Guernsey) Ltd (GSY)
Regulated

Fund	Bid	Offer	D+/-	Yield
Monument Growth 22/11/2022	£ 545.21	550.55	1.04	1.11

Prusik Investment Management LLP (IRL)
Enquiries - 0207 493 1331
Regulated

Fund	Bid	Offer	D+/-	Yield
Prusik Asian Equity Income B Dist	$ 171.32	-	-1.77	5.08
Prusik Asia Emerging Opportunities Fund A Acc	$ 181.78	-	1.50	0.00
Prusik Asia Fund U Dist.	£ 205.16	-	-0.47	0.00
Prusik Asia Sustainable Growth Fund A Acc	$ 85.68	-	-0.56	-

Purisima Investment Fds (CI) Ltd (JER)
Regulated

Fund	Bid	Offer	D+/-	Yield
PCG B ✠	276.98	-	-2.47	0.00
PCG C ✠	269.46	-	-2.41	0.00

Ram Active Investments SA
www.ram-ai.com
Other International Funds

Fund	Bid	Offer	D+/-	Yield
RAM Systematic Emerg Markets Eq	$ 204.70	204.70	-1.00	-
RAM Systematic European Eq	€ 511.60	511.60	-3.25	-
RAM Systematic Funds Global Sustainable Income Eq	$ 148.62	148.62	-1.39	0.00
RAM Systematic Global Eq Sustainable Alpha	$ 109.16	109.16	0.58	-
RAM Systematic Long/Short European Eq	€ 152.09	152.09	0.74	-
RAM Systematic US Sustainable Eq	$ 341.26	341.26	-5.09	-
RAM Tactical Global Bond Total Return	€ 138.05	138.05	-0.07	-
RAM Tactical II Asia Bond Total Return	$ 141.30	141.30	0.21	-

Ruffer LLP (1000)F (UK)
65 Gresham Street, London, EC2V 7NQ
Order Desk and Enquiries: 0345 601 9610
Authorised Inv Funds
Authorised Corporate Director - Link Fund Solutions

Fund	Bid	Offer	D+/-	Yield
LF Ruffer Diversified Rtrn C Acc	106.12	-	0.25	0.85
LF Ruffer Diversified Rtrn C Inc	105.23	-	0.24	0.94
LF Ruffer European C Acc	763.13	-	0.66	0.82
LF Ruffer European C Inc	136.90	-	0.12	0.91
LF Ruffer Equity & General C Acc	562.52	-	-0.52	0.77
LF Ruffer Equity & General C Inc	508.21	-	-0.47	0.78
LF Ruffer Gold C Acc	222.42	-	-2.03	0.00
LF Ruffer Gold C Inc	134.62	-	-1.23	0.00
LF Ruffer Japanese C Inc	159.85	-	-2.56	0.26
LF Ruffer Japanese C Acc	344.38	-	-5.51	0.24
LF Ruffer Total Return C Acc	570.54	-	0.12	2.41
LF Ruffer Total Return C Inc	355.81	-	0.07	2.46

Rubrics Global UCITS Funds Plc (IRL)
www.rubricsam.com
Regulated

Fund	Bid	Offer	D+/-	Yield
Rubrics Emerging Markets Fixed Income UCITS Fund	$ 131.92	-	0.04	-
Rubrics Global Credit UCITS Fund	$ 16.53	-	0.01	0.00
Rubrics Global Fixed Income UCITS Fund	$ 169.19	-	-0.03	0.00

Slater Investments Ltd (UK)
www.slaterinvestments.com; Tel: 0207 220 9460
FCA Recognised

Fund	Bid	Offer	D+/-	Yield
Slater Growth A Acc	644.45	644.45	0.07	0.00
Slater Income A Inc	141.20	141.20	0.32	5.22
Slater Recovery A Acc	334.69	334.69	0.84	0.00
Slater Artorius	288.29	288.29	-6.73	0.32

Stonehage Fleming Investment Management Ltd (IRL)
www.stonehagefleming.com/gbi
enquiries@stonehagefleming.com
Regulated

Fund	Bid	Offer	D+/-	Yield
SF Global Best Ideas Eq B USD ACC	$ 217.04	-	-2.42	-
SF Global Best Ideas Eq D GBP INC	£ 273.52	-	-1.79	-

Superfund Asset Management GmbH
www.superfund.com, +43 (1) 247 00
Other International Funds
Other International Funds

Fund	Bid	Offer	D+/-	Yield
Superfund Green Gold	$ 1180.55	-	-16.62	0.00
Superfund Green Silver	$ 998.97	-	-30.67	0.00

Regulated

Fund	Bid	Offer	D+/-	Yield
Superfund Green US$	$ 958.10	-	-5.86	0.00

Toscafund Asset Management LLP (UK)
www.toscafund.com
Authorised Funds

Fund	Bid	Offer	D+/-	Yield
Aptus Global Financials B Acc	£ 4.73	-	-0.03	4.36
Aptus Global Financials B Inc	£ 3.06	-	-0.02	4.51

Toscafund Asset Management LLP
www.toscafund.com

Fund	Bid	Offer	D+/-	Yield
Tosca A USD	$ 406.01	-	8.84	0.00
Tosca Mid Cap GBP	£ 170.45	-	1.07	0.00
Tosca Opportunity B USD	$ 261.12	-	2.32	0.00
Pegasus Fund Ltd A-1 GBP	£ 40.62	-	0.28	0.00

Troy Asset Mgt (1200) (UK)
65 Gresham Street, London, EC2V 7NQ
Order Desk and Enquiries: 0345 608 0950
Authorised Inv Funds
Authorised Corporate Director - Link Fund Solutions
Trojan Investment Funds

Fund	Bid	Offer	D+/-	Yield
Trojan Ethical O Acc	124.76	-	-0.25	0.00
Trojan Ethical Global Inc O Acc	101.66	-	-0.33	-
Trojan Ethical Global Inc O Inc	99.14	-	-0.32	-
Trojan Ethical O Inc	124.51	-	-0.26	0.00

Zadig Gestion (Memnon Fund) (LUX)
FCA Recognised

Fund	Bid	Offer	D+/-	Yield
Memnon European Fund - Class U2 GBP	£ 239.73	-	-1.25	0.00

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www.morningstar.co.uk

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Guide to pricing of Authorised Investment Funds: (compiled with the assistance of the IMA. The Investment Association, Camomile Court 23 Camomile Street, London EC3A 7LL. Tel: +44 (0)20 7831 0898.)

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Buying price: Also called offer price. The price at which units in a unit trust are bought by investors. Includes manager's initial charge.

Single price: Based on a mid-market valuation of the underlying investments. The buying and selling price for shares of an OEIC and units of a single priced unit trust are the same.

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Exit Charges: The letter E denotes that an exit charge may be made when you sell units, contact the manager/operator for full details.

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The symbols are as follows: ✠ 0001 to 1100 hours; ◆ 1101 to 1400 hours; ▲ 1401 to 1700 hours; # 1701 to midnight. Daily dealing prices are set on the basis of the valuation point, a short period of time may elapse before prices become available. Historic pricing: The letter H denotes that the managers/operators will normally deal on the price set at the most recent valuation. The prices shown are the latest available before publication and may not be the current dealing levels because of an intervening portfolio revaluation or a switch to a forward pricing basis. The managers/operators must deal at a forward price on request, and may move to forward pricing at any time. Forward pricing: The letter F denotes that that managers/operators deal at the price to be set at the next valuation.

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Erdoğan's nightmare

Turkish singer and activist Gaye Su Akyol is the futuristic figurehead of the revived Anatolian rock movement. She talks to Nick Hasted

Gaye Su Akyol at home in Istanbul, shot by Bradley Secker for the FT

When I last saw Gaye Su Akyol in Istanbul in 2019, she resembled President Erdoğan's worst nightmare. Singing to a fervent crowd in her native bohemian quarter of Kadıköy, she wore a bat-winged silver cape and matching bustier, with her midriff bare and boots thigh-high. She was a deliberately inspirational, sci-fi vision of sexually liberated, female Turkish rock'n'roll rebellion.

"When I wear those costumes," Akyol explains today when we meet in Istanbul, "I become my own superhero. It's like when Superman goes to the phonebooth, and becomes himself."

Akyol is the futuristic figurehead of the revived Anatolian rock movement, which first flourished between military

> 'As a woman, or a queer person, you have to act like something tougher than you are'

coups in the 1960s and 1970s. Fusing Turkish classical and folk music roots with mind-expanding psychedelic rock, it was embodied then by the likes of Cem Karaca, whose voice was a wild flourish of insolent romantic freedom, and Selda Bağcan, a rare female pioneer and early Akyol hero, who was jailed for her protest songs.

Akyol has hot-wired this tradition to encompass her love of surf-rock, Nirvana and Bowie, bringing her Songlines magazine's Best Artist award in 2019, and a following from Europe to the Middle East. On her new, fourth album, *Anadolu Ejderi* (*Anatolian Dragon*), she has taken further inspiration from cosmic jazz, Afrobeat and electronica. Fans include Iggy Pop, who has called her a "seductive, intricately poised, richly Turkish chanteuse".

When we meet over chai in her Kadıköy apartment, Akyol, 37, is dressed down in a cardigan; silver fingernails and black slashes of eyeshadow are the only daytime hints of her glamorous alter ego. Akyol's own painting of a distorted, bulbous face suggests a similar, thickly daubed portrait downstairs by her artist father, Muzaffer Akyol. There's a pharaoh's mask and a Pride flag in the fireplace, and a "queer superhero cabinet" of ceramic figures combining comics and myth, where red intestines curl inside a Medusa.

Akyol's need to identify with such fantastical heroes was, she says, brought on as a child. "I saw the discrimination between my brother and me, between male and female. This was a very big shock. So I had to fight for my own freedom at home, then it became universal with my music." For Akyol, such strength is a sorrowful necessity.

Gaye Su Akyol performs on stage in 2019 — Mariano Regidor/Redferns

"As a woman, or a queer person, you always have to act like something tougher than you are, just to live in this horrible world."

Akyol's music is implicitly haunted by Turkey's September 12, 1980 military coup. *Anadolu Ejderi*'s title and artwork, which shows Akyol as a forked-tongued dragon-woman, addresses all she sees as lost. Her dragon is a metaphorical beast, representing a rich, authentically multicultural past ploughed under by her country's current Turkish Muslim nationalism.

Anatolian rock's heroes were similarly harried into exile, silence or jail after 1980. Interest revived in the late 1990s, and Akyol's success has grown alongside gritty Istanbul peers such as Korhan Fatucı, and international acts such as the Grammy-nominated Dutch-Turkish group Altın Gün.

But nostalgia is anathema to her. "Anatolian Turkish music has always been very political, and original," she says sharply. "Otherwise it's just a touristic item for the west."

Anadolu Ejderi thrillingly combines the music's past, present and future, as with the dirty electronic throb of "Biz Ne Zaman Düşman Olduk" (When Did We Become Enemies), where Akyol's voice, typically a low, shivering ache rooted in Turkish tradition, is thuggishly distorted.

"I heard a David Bowie quote at just the right time for this record," she explains, "saying you should go further, and whenever you don't feel safe, that's the right place." Her mutating art is certainly Bowiesque.

Akyol has been questioned before by the police, who suspected her song "Nargile" of anti-government intent. She was allowed to go free because her lyrics tend towards metaphor. Rather than engage in direct protest, her reaction to social conservativism and crackdowns on dissent is to build an alternative, dreamt realm in her music, where it can't be touched.

Her lyrics also burn with erotic longing, defying a country where she sees love and sex as under assault. "My ideas are very open," Akyol insists. "I'm a protector of human rights, woman rights, queer rights, LBGTI rights. That's enough reason for them to hate me. But I don't care about their dark ideas."

Akyol has also engaged in real-world dissent, in 2013's massive protests in Istanbul's Gezi Park. "I understood in Gezi that there were millions of other people feeling like me. So I was there every day. To look for our independence, to take back our lives from their hands." Akyol sighs. "It was so beautiful, so magical. If I'm staying in this country, that's because of those days. Because I know there's a hope."

So Akyol goes on waiting for better days to equal her mythological, time-bending Turkish music. "Honestly, actually, I don't do anything more than dreaming," she laughs, "then eventually it becomes real."

'Anadolu Ejderi' is released by Glitterbeat

FT FINANCIAL TIMES

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#BrackenBower

Of murder and manuscripts

GAMING

Tom Faber

"Murder at the abbey" might sound like a detective plot at its cosiest, but in the hands of master storytellers Obsidian Entertainment, historical whodunnit *Pentiment* makes for one of the year's most unusual and sophisticated games. This compelling mystery, steeped in period detail, is a grown-up tale which probes ideas around history and faith with an intellectual rigour which is more *Name of the Rose* than *Murder, She Wrote*.

The year is 1518 and you are Andreas Maler, a journeyman artist staying in the Bavarian village of Tassing while working on an illuminated manuscript in the nearby Kiersau Abbey. If your eyelids are already beginning to droop, then this game might not be for you; history buffs and narrative game fans, read on. When a visiting nobleman is murdered and your closest friend and mentor is accused, you must clear his name by finding the real killer.

So Maler travels around the town talking to people and gathering information to solve the mystery. This is the meat of the game, so be prepared for lots of reading. Tension is supplied by the day's cycle, which follows the liturgical hours from Matins to Compline. You have limited time and will not be able to chase every lead, so must choose your actions carefully.

Then, just when you think you've got the suspect and the game is concluding, you realise the game is only finishing its first act as the story skips forward in time. Now Maler has grown melancholic while the townspeople's resentments have curdled into grudges. As the game grows, you notice how the innocuous choices you made in the first section have wide-reaching impacts on beloved characters' lives.

While there is little conventional gameplay beyond traversing the world and engaging in dialogue with characters, it still feels compelling and enjoyable thanks to the sharp writing and the meaningful player choices which dramatically influence the course of the game's plot.

The game's art is a marvel, inspired by medieval illustrations and woodcuts. During scene transitions, the camera swoops in and out of the pages of a book, making you feel like you're playing not on a screen but instead an illuminated manuscript. The most loving details are found in how the game makes writing come alive: characters speak in text outlined and filled in by a quill, which you can hear scratching across the vellum. Depending on their social standing, their words might be depicted in simple cursive or imposing black-letter script. When they shout, ink splatters across the page.

'Pentiment' makes for one of the year's most unusual games

Of course, a game so in love with the physical act of writing ought to deliver on strong dialogue, and the pedigree of

> When a nobleman is killed and your closest friend accused, you must clear his name

the creators behind *The Outer Worlds* and *Fallout: New Vegas* more than delivers, with a smart script that prizes concision and finely drawn characterisation.

Rich historical details immerse players deeply in this evocation of 16th-century Bavaria. *Pentiment* is set at a time of great social upheaval, as certainties are crumbling and balances of power are shifting. Central to this are questions of belief: Tassing is a town where some still worship old pagan gods in the forest, while Catholic dogma is also losing its grip in the face of Renaissance ideas and the advent of the printing press. It's certainly the first time a game has asked me to engage in a debate on the ideas of Martin Luther.

The title is drawn from "pentimento", a term in fine art denoting a change that has been made by an artist while painting, which is usually covered over with subsequent layers of paint. Its root is the Italian verb *pentirsi*, meaning "to repent". The name reflects the game's idea that history is malleable, subjective and easily manipulated for the purposes of power.

By the end, the whodunnit is no longer really the point. Instead *Pentiment* is about how broad social changes play out in the microcosm of a small community over a wide swath of time. It is an ambitious and thrilling work of narrative game design.

Bizarrely, *Pentiment* is not the only new game based on medieval manuscripts. Though its aesthetics are similar, *Inkulinati* is a different beast entirely. The idea is a strategy game that animates the animals adorning the margins of illuminated texts.

You draw figures on the page using "living ink" and manoeuvre them into battle, meeting historical figures such as Dante and nun/composer Hildegard of Bingen. It is zany fun and offers compelling strategic gameplay. In a gaming landscape where it feels like every story is either sci-fi or fantasy, these two titles show that you can conjure something fresh by reaching deep into the past.

'Pentiment' is out now on PC and Xbox

FT BIG READ. ELECTRIC VEHICLES

By 2030, battery production in the town of Debrecen will rival that of many European countries. But the government's success in attracting investment from the likes of China's CATL is raising some hackles.

Marton Dunai, Yuan Yang and Patricia Nilsson

Hungary's battery boom town

Sándor Máriás still remembers the Soviet fighter jets that kept him up all night as a child. He grew up during the communist era on a small farm next to a military air base outside Debrecen, in eastern Hungary. Their family home was 300 metres from the runway. "The jets' roar was deafening especially when they practised touch-and-go manoeuvres," he recalls.

After the regime collapsed in 1989, the neighbours all sold their land but Máriás held out. That was until a wave of green technology started to wash over Debrecen.

Today, the dirt track next to the farm leads to Korean battery materials maker EcoPro BM's new development site, where the company committed to a €700mn investment to produce cathodes, one of the key components in batteries. Next door, Chinese battery giant CATL plans to spend 10 times as much on Europe's largest gigafactory.

In just a few years, Hungary has transformed itself into a potential electric vehicles powerhouse, centred on Debrecen. By 2030, battery production in this town of 200,000 people will rival every European country other than Germany.

The investment boom was ignited by automaker BMW, which is building a €2bn electric vehicle factory in the town. Including the CATL announcement and factories for a dozen major suppliers and scores of smaller ones, the EV expansion has attracted investment of more than €10bn to the town.

Elsewhere in the country, South Korean SK Innovation and Samsung are each spending about €1bn to build and expand battery plants. Germany's Mercedes-Benz and Audi are switching their large Hungarian carmaking units to produce electric vehicles as well. By the time Europe outlaws the sale of new petrol or diesel cars from 2035, Hungary's car industry is set to be all electric.

The government has helped achieve this by offering major tax breaks for the sector, along with friendly and efficient regulation. Along with other benefits, CATL is now set to receive tax and infrastructural incentives worth about €800mn in Hungary.

"We began talks with CATL two and a half years ago, when the company had another location in mind," foreign minister Péter Szijjártó told a local news site. "We performed a heroic save as we wiggled our way into the picture."

For Budapest, building infrastructure for the transition to electric vehicles is vital: the auto industry makes up a fifth of Hungary's exports and 8 per cent of its economic output.

"This process is an existential challenge to the Hungarian and European economy," says Péter Kaderják, chair of the Hungarian Battery Association and a former government official under Prime Minister Viktor Orbán.

"This game is for real. And in this new industry the key to the process is the battery. Europe has fallen behind and missed out on the opportunity to create a complete value chain."

However, the success in attracting so many investments has generated criticism. Some fear that Hungary risks becoming too dependent on Chinese battery-makers — and is giving too much diplomatic leverage to Beijing.

In Debrecen, residents worry about scarce water supplies as well as the pressure on housing, schools, hospitals and more from the new workers.

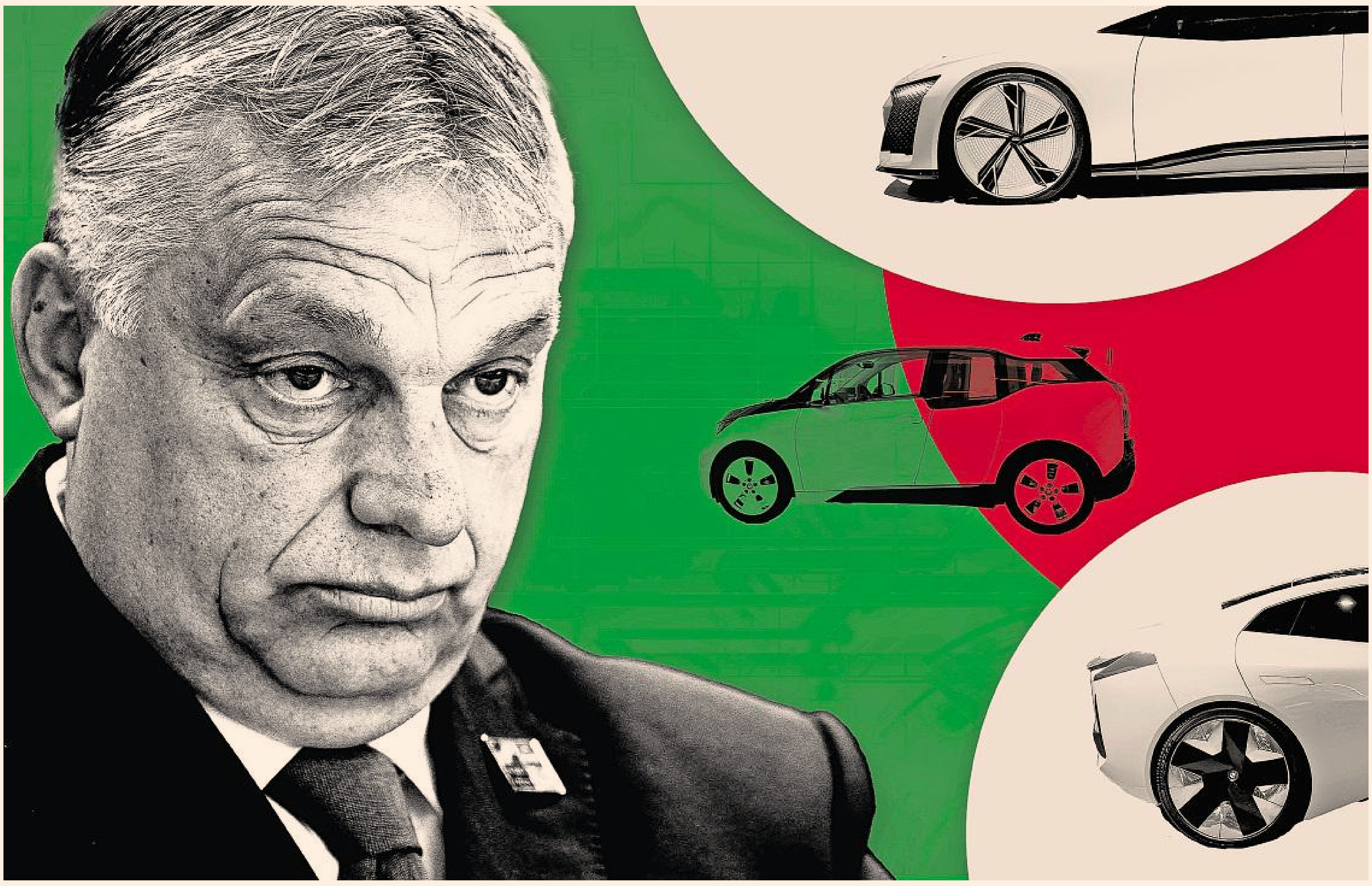
"This may put Debrecen on the European industry map, but lots of people rightly ask, 'What about the energy needs, the water, sewage, labour?'" asks József Pálinkás, 70, a Debrecen resident who was former head of the Hungarian Academy of Sciences and served as the government's chief official for research and development until 2018. "Can this town cater to these giants?"

Expansive change

CATL executives first started scouting for locations in eastern Hungary shortly before the coronavirus pandemic erupted. What the government has described as a cut-throat race to attract the company blindsided almost everyone in Debrecen.

Rumours only began to emerge earlier this year after announcements trickled in about smaller investments related to batteries. Industry minister László Palkovics talked in May about the need to beef up water and electricity grids in anticipation of a new battery manufacturer in Debrecen.

Then in August, CATL and the government announced with great fanfare that the Chinese giant would invest €7.3bn to build a 100GWh battery plant in Debrecen — about five times the current size of Tesla's Nevada Gigafactory, and enough to power 2mn new cars per year.



As part of Prime Minister Viktor Orbán's 'eastern opening' policy, Hungary has attracted large investment from China for its vibrant electric vehicle industry, centred on the town of Debrecen, bottom right
FT montage; AFP/Getty/Dreamstime; Olezzo/Dreamstime

'This may put Debrecen on the map, but lots of people rightly ask, "What about the energy needs, the water, sewage, labour?"'

The investment will be financed by a loan from China Construction Bank, according to a source with knowledge of the situation. "The greenfield project in Hungary will be a giant leap in CATL's global expansion," founder and chair Robin Zeng said. Markus Schäfer, the chief technology officer at Mercedes-Benz, which has a large plant in central Hungary, said the carmaker will be "the first and largest client of the new factory".

BMW said last week that it would put a battery assembly facility at the site of its Debrecen plant, doubling the total investment there to €2bn. A key factor, the company said, was the "battery cell factories to be built in the vicinity".

"Europe is the main overseas market CATL is going for, because of the amount of OEMs [carmakers] here," says Yu Du, head of China research at battery market research firm Rho Motion. "CATL's Hungary plant comes as part of their partnership with BMW. They want to be closer to the car plants."

CATL has said little about its Debrecen plans. However, according to three people who are not authorised to speak publicly, the company plans to move quickly with a first unit, launching production at the site in May 2025 and scale it up until the unit has a capacity of 33GWh. It will comprise a single building measuring a kilometre in length, plus a smattering of side buildings.

Two more identical units will follow. The factory will reach full size by around 2030, according to these people. It is only then that the full impact in Debrecen will be felt, including the pressures on other aspects of life in the town: water use and pollution, energy consumption and labour needs.

Debrecen might seem like an unusual choice for an industry such as battery manufacturing that uses a lot of water. It is an hour's drive from a major river, the Tisza, and it is situated among the farmlands of the Hungarian plains, which already suffer from climate change induced drought.

At the parliamentary hearing in May, Palkovics said that every hour, the CATL factory would use a similar amount of fresh water to the entire population of Debrecen.

"That's a hell of a lot of water they need," says István Fábián, a water chemist and former rector of the University of Debrecen. "If indeed they won't use even more."

Fábián, who has studied the town's water systems for decades, has many questions about CATL's water plans. There is plenty of groundwater under the town, but some of it is hard to get to, some of it is contaminated and there are doubts about existing plans to pipe in more from the Tisza.

Supply constraints

People familiar with the company's plans say it is investigating water resources and technology for the potential use of purified wastewater. "The local water supply system can meet the demand of our Debrecen plant," the company said.

CATL, according to Palkovics, would also need constant power capacity of about 800MW, the output of a large power plant, as well as plenty of natural gas — both potential problem sources as Hungary, like the rest of Europe, faces steep energy costs and availability problems as a result of the war in Ukraine.

Government officials have privately expressed concern about this and other energy-intensive plants coming online at the same time, elevating electricity and gas use in the country just as energy markets are under increasing supply pressure.

However, CATL has ways to ease the energy supply constraints. It plans to use some of the land it has acquired to generate solar power, the company said. It will procure green energy from the regional markets as needed.

Debrecen mayor László Papp insists the town can handle the boom, with the government's backing, and adds the fears over water use are overblown.

"Despite the past year's drought, groundwater levels no longer recede," he says. "Debrecen's water is not threatened. Plus, climate change or not, we will not get back to the water use levels of the 1980s . . . even if the entire industrial capacity gets built."

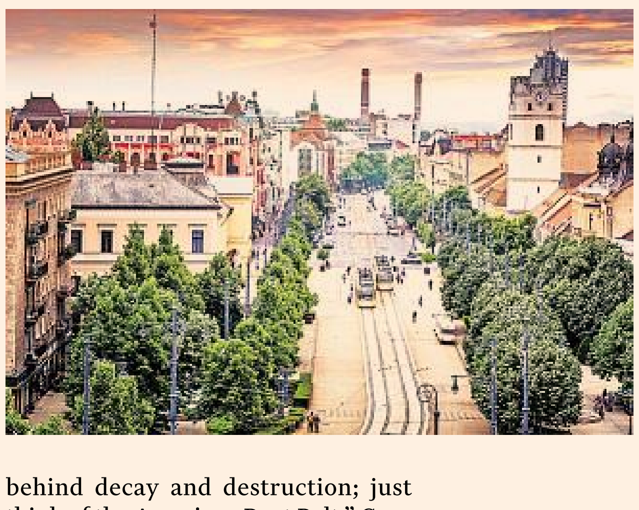
The Financial Times requested comments from several government ministries and development agencies. Of those that replied, each declined to comment.

But Szijjártó, the foreign minister, has in the past said concerns about water, energy and labour are groundless. "This investment can only happen if it meets the strictest environmental standards," Szijjártó told local media. "Debrecen can rest assured, preserving water and air quality is not up for compromise."

Despite these assurances, there is considerable resistance in Debrecen to some of the investments.

As much as three quarters of residents want the big factories to stay away, says Zsolt Gondola, an attorney and leader of the NGO Civil Forum, which has surveyed local people.

"Big industrial investments have been built and abandoned before, leaving behind decay and destruction; just think of the American Rust Belt," Gondola says. "We must anticipate that it is a normal part of the economic cycle, except our beginner capitalism has not faced that yet. When the big money comes, we bend over backwards."



Pálinkás says the government should not ignore an erosion of trust but open up about the details. "Debrecen was told of this too late," he says. "I understand secrecy while the investors had several options, but once the decision was made they should have been more open. We have these questions because they impact our very lives."

The China connection

CATL's huge investment in Debrecen also comes amid a growing debate about Chinese investments in Europe and Hungary's relationship with Beijing.

Chinese state-owned firms have built infrastructure across central and eastern Europe as part of Beijing's global Belt and Road Initiative, beginning with the opening of the Pupin Bridge over the Danube in Serbia in 2014. But partners have criticised BRI projects for their lack of transparency over financing and planning. Eastern European diplomats in Beijing have spoken of high hopes for investment agreements set against a lacklustre reality, as well as complaining of being treated as junior partners — an unwelcome reminder of the dynamics of the former Soviet Union.

'In the [electric vehicle] industry the key to the process is the battery. Europe has fallen behind'

Hungary, however, has warmed to Chinese investment just as other European countries have grown wary. Under Orbán's "eastern opening" policy, Chinese companies have invested in the chemical industry; Beijing is bankrolling and building a new Belgrade-Budapest railway; and Shanghai's Fudan University has tried to open a Budapest campus.

Péter Kaderják, the battery association chair, says this connection with Beijing is vital because the transition to electric vehicles is so important to Hungary — and because China, the leader in EV batteries, prefers warm diplomatic relations.

As Chinese and Korean companies take the lead in Hungary's nascent battery industry, some people, including Kaderják, acknowledge that this new relationship could make Europe dependent on Asian battery suppliers.

Edit Zgut-Przybylska, a researcher at the Polish Academy of Sciences and vice-president of Amnesty International in Hungary, says the investment expands China's strategic influence on European economic infrastructure.

"The CATL investment fits a decade-long strategy during which the Orbán regime further committed itself to a China-friendly policy," she says. "Budapest serves as a battering ram for Beijing on the European level by vetoing joint EU initiatives critical of China."

However, András Deák, an energy expert at Hungary's Public Service University, says dependency fears are premature because the technology is so fluid that lithium-based batteries may be one of several options in a few years.

He says the green transition must be viewed more broadly than cars, which will mean all sorts of batteries produced for household and even industrial use. Those technologies are not all coming from China, although most are Asian, he says. "I fear climate change more than I fear China," he says. "It's too early to worry about that. I would not put brakes on electric mobility or battery technologies for geopolitical fears."

Máriás, the farmer, is pragmatic about the changes coming. "Let the city develop, let the industrial parks come, we have moved on," he says.

The town offered him a fair deal for his farm, he says, and he built a new home nearby. "A piece of my heart stayed in the old compound, but life goes on. I can keep doing what I do."

Additional reporting by Raphael Minder

The FT View

FINANCIAL TIMES

'Without fear and without favour'

ft.com/opinion

China's dire predicament over zero-Covid protests

Beijing should begin to move from tight controls to mass vaccination

China faces an almost impossible situation. Protests this week against Beijing's "zero-Covid" policy in many cities across the country reveal a level of public anger rarely seen since the Tiananmen Square demonstrations in 1989. But loosening China's Covid controls and potentially unleashing an "exit wave" of infections could kill hundreds of thousands — if not millions — of elderly citizens over the winter.

The damage that this predicament is inflicting on the reputation of China's authorities and the prestige of Xi Jinping, its president, is real. TV images of maskless crowds watching the World Cup in Qatar are only reinforcing the sense that Beijing has been slow to exit the pandemic, notwithstanding the artful efforts of Chinese censors to edit out crowd scenes from World Cup coverage.

For Xi, who is hailed by state media as the "commander-in-chief of the people's war against Covid", the demonstrations represent a personal failure. China's authoritarian leader, who secured an unprecedented third term as general secretary of the Communist party in October, has often boasted of the "superiority" of China's system in its epic struggle against Covid.

In late 2020, for example, he extolled China as the "first major economy to have recuperated from the crisis and achieved economic recovery, a testimony to its resilience and vibrancy". Now though, cases are close to record levels, economic vibrancy has been clobbered by rolling urban lockdowns and a large cohort of insufficiently vaccinated elderly people remain at risk.

To be sure, the scale of the demonstrations in at least 18 cities over the weekend have been relatively modest. Groups of people numbering from just a few to about 1,000 have gathered for candlelit vigils and peaceful protests holding blank pieces of paper, phone lights and calling for an end to lockdowns and frequent mass testing. By contrast, the "pro-democracy" demonstrations of 1989, which were eventually crushed by force, involved more than 1mn people on some days.

On Tuesday, police appeared to have stamped out the protests, at least for now. The National Health Commission reaffirmed Beijing's commitment to zero-Covid while also pledging to boost vaccination rates among the elderly.

This is urgently needed. According to the latest official statistics, 32 per cent of China's 267mn people over the age of 60 have not received their third vaccine dose. That figure jumps to 60 per cent for the over-80s. The booster is required to attain high levels of protection against the Omicron variant.

Nevertheless, the quality of China's homegrown vaccines remains deeply suspect and although a few homegrown mRNA vaccines are undergoing clinical trials, none has yet been approved for domestic use. This leaves China's elderly population dangerously exposed.

> A failure to accelerate approvals for proven mRNA vaccines would put national pride ahead of the welfare of its population

A wise — and increasingly urgent — course of action would therefore be for Beijing to accelerate approvals for proven mRNA vaccines such as those manufactured by Pfizer, Moderna and other foreign groups. Failure to do so will reveal a willingness to put national pride ahead of the health and economic welfare of its population.

The emergency that China faces is not only defined by the lethal risk to many of its elderly citizens. If the latest wave of Covid infections gets out of control, the sheer number of cases will overwhelm an already stretched public health system. If this happens, public anger toward Xi's regime could escalate still further. Beijing needs to realise that the protesters on the streets are voicing legitimate grievances. It is time for the Chinese Communist party to act on one of its favourite propaganda slogans and "put people first".

Opinion Science

A Machiavellian machine raises questions about AI

Andy Carter

Anjana Ahuja

I remember my daughter's first fib. She stood with her back to the living room wall, crayon in hand, trying to conceal an expansive scrawl. Her explanation was as creative as her handiwork: "Daddy do it."

Deception is a milestone in cognitive development because it requires an understanding of how others might think and act. That ability is on display, to a limited extent, in Cicero, an artificial intelligence system designed to play Diplomacy, a game of wartime strategy in which players negotiate, make alliances, bluff, withhold information, and sometimes mislead. Cicero, developed by Meta and named after the famed Roman orator, pitted its artificial wits against human players online — and outperformed most of them.

The arrival of an AI that can play the game as competently as people, revealed last week in the journal Science, opens the door to more sophisticated human-AI interactions, such as better chatbots, and optimal problem-solving where compromise is essential. But, given that Cicero demonstrates AI can, if necessary, use underhand tactics to fulfil certain goals, the creation of a Machiavellian machine also raises the question of how much agency we should outsource to algorithms — and whether a similar technology should ever be employed in real-world diplomacy.

> Cicero demonstrates that chatbots can, if necessary, use underhand tactics to fulfil certain goals

Last year, the EU commissioned a study into the use of AI in diplomacy and its likely impact on geopolitics. "We humans are not always good at conflict resolution," says Huma Shah, an AI ethicist at Coventry University in the UK. "If AI could complement human negotiation and stop what's happening in Ukraine, then why not?"

Like chess, the game of Diplomacy can be played on a board or online. Up to seven players vie to control different European territories. In an initial round of actual diplomacy, players can strike alliances or agreements to hold their positions or move forces around, including to attack or to defend an ally.

The game is regarded as something of a grand challenge in AI because, in addition to strategy, players must be able to understand others' motivations. There is both co-operation and competition, with betrayal a risk.

That means, unlike in chess or Go, communication with fellow players matters. Cicero, therefore, combines the strategic reasoning of traditional games with natural language processing. During a game, the AI works out how fellow players might behave in negotiations. Then, by generating appropriately worded messages, it persuades, cajoles or coerces other players into making partnerships or concessions to execute its own game plan. Meta scientists trained Cicero using online data from about 40,000 games, including 13mn in-game messages.

After playing 82 people in 40 games in an anonymous online league, Cicero ranked in the top 10 per cent of participants playing more than one game. There were hiccups: it sometimes spat out contradictory messages on invasion plans, confusing participants. Still, only one opponent suspected Cicero might be a bot (all was revealed afterwards).

Professor David Leslie, an AI ethicist at Queen Mary University and at the Alan Turing Institute, both in London, describes Cicero as a "very technically adept Frankenstein": an impressive stitching together of multiple technologies but also a window into a troubling future. A 2018 UK parliamentary committee report advised that AI should never be vested with "the autonomous power to hurt, destroy or deceive human beings".

His first worry is anthropomorphic deception: when a person wrongly believes, as one opponent did, that there is another human behind the screen. That can pave the way for people to be manipulated by technology.

His second concern is AI equipped with cunning but lacking a sense of fundamental moral concepts, such as honesty, duty, rights and obligations. "A system is being endowed with the capacity to deceive but it is not operating in the moral life of our community," Leslie says. "To state the obvious, an AI system is, at the basic level, amoral." Cicero-like intelligence, he thinks, is best applied to tough scientific problems like weather analysis, not to sensitive geopolitical issues.

Interestingly, Cicero's creators claim that its messages, filtered for toxic language, ended up being "largely honest and helpful" to other players, speculating that success may have arisen from proposing and explaining mutually beneficial moves. Perhaps, instead of marvelling at how well Cicero plays Diplomacy against humans, we should be despairing at how poorly humans play diplomacy in real life.

The writer is a science commentator

Letters

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When deep and liquid financial markets hurt the real economy

Rana Foroohar is — as usual — spot on in her questioning of the social value of crypto ("Crypto is a new asset with an old problem", Opinion, November 21).

Crypto's claims to be a hedge against inflation have been nothing but a selling proposition to naive savers, lured into a pyramid "game", which enriched the early investors. But even more egregious in a democracy are crypto's claims to recover "monetary sovereignty" for citizens from the evil machinations of government authorities. Yes, libertarianism may be a legitimate political worldview for those who want to pursue it, but no, it is not legitimate to attempt to undermine the basic functions of democratic state institutions.

The glaring absence of proper financial oversight and investor protection of crypto is a sign that supervisory authorities have not adequately learned the lessons from the subprime crisis, or have fallen for the false claims that it is just a new asset class.

But much more important than Foroohar's condemnation of crypto is her question: "What is all this speculative trading, in crypto or derivatives, actually for?"

She is right to suggest that this type of algorithm-driven continuous trading does not primarily serve the "real" economy (businesses and households), but rather "benefits a tiny handful of rich traders" who shift assets around.

There are not only negative distribution effects to this trading, but also severe swings in the asset valuations, which feed back into the real economy and destabilise it. Talk of the desirability of deep and liquid financial markets, which underlies among others the EU's attempts to create a capital markets union, is not only a myth, but an attempt by special interests to increase trading volumes even further. And remember: each transaction generates commissions and fees for the traders: the more, the richer.

Kurt Bayer
Former World Bank and EBRD Board Director, Vienna, Austria

Here's the task for central banks as QE unwinds

Quantitative easing has clearly caused some confusion. In "The money supply horse has already bolted", Martin Allen is quite right on his main point (Letters, November 22). However, this does not mean that John Plender's concern ("Test of central bank credibility looms on bond losses", Markets Insight, November 17) was misplaced. For that addressed a different aspect of the issue.

It was overwhelmingly likely from the start that central banks — and therefore sovereign states as their legal and/or beneficial owners — would end up taking a loss from buying sovereign and other bonds near the top of the market in the periods when QE was building up. Governments presumably judged that such a price was worth paying for the economic stability offered by QE, mainly through limiting relatively long-term borrowing rates.

There are several reasons why it would not be a good idea for central banks to trade while insolvent; but that problem can be fixed by a timely solution. Governments will have to recapitalise their central banks, probably by the most easily available method of donating them with new sovereign bonds. The full extent of the bond losses will not crystallise until QE is fully unwound. However, the time has probably come now for the central banks to be provisioning for these and requesting recapitalisation. Their own accounting should be no less prudent than they would expect of regulated commercial banks.

The bloated reserve balances that commercial banks hold with central banks through the working of QE constitute both money (within the narrow measures of money supply) and components of national debt. Gerald Holtham is wrong to suggest that they could not be both ("Remember, central banks have no real liabilities", Letters, November 21). The creditor banks could not call these reserves if they were not repayable on demand. For example, UK banks would be free at any time to switch some of their reserve assets out of their balances with the Bank of England, back into gilts — or even into US Treasuries where the bank itself keeps most of the UK's currency reserves.

It would of course be possible in any country for legislation, or central bank rules, to force local banks to hold large minimum compulsory deposits at zero interest with central banks. Then the relevant central bank perhaps could indeed write these amounts down to near zero on the liabilities side of its balance sheet, as Holtham suggests. However, exactly the same consequences would be forced on the assets sides of the commercial banks' balance sheets.

The effect would be catastrophic for the banks' capital, as well as for their liquidity ratios — and it would constitute a first class sovereign default.

The inflation likely to have resulted directly from the monetary expansion implicit in probable central bank bond losses under QE may already have fully occurred. As QE unwinds, the task for central banks is to avoid accommodating continuing high inflation, while of course not trying to reverse that of the past.

Andy Thompson
Worcester Park, Surrey, UK

Paying off cyber hackers just encourages them

Your Special Report ("Held to ransom: is there a case for paying hackers?", November 9) fails to fully consider the risks from paying cyber attackers' demands and ignores proven ways to avoid paying ransoms altogether.

Aside from attackers' unreliable decryption methods, research shows that ransomware incidents are increasingly only the starting point for sophisticated secondary or even tertiary attacks, such as exposing files online or sensitive files being offered for sale. To pay your attacker is effectively to fund and encourage future exploits.

There are in any case effective ways for companies to recover their data without paying up. Modern protection concentrates on file systems, storing immutable versions of files in cloud-based object storage. When an incident occurs, the IT team restores only the files and folders encrypted during the attack by pointing the file system at the unencrypted versions of files in the cloud, simplifying and accelerating their attack recovery processes. This rapid file recovery is crucial: industry researchers now believe that the costs of extended ransomware recovery cycles often dwarf the attackers' initial "table stakes" ransom demands.

Andres Rodriguez
Founder and Chief Technology Officer Nasuni, Boston, MA, US

Danger for CCP is replay of its own revolution script

I agree with most of Yuan Yang's comment piece (November 29) on the protests in China. However, "urban elites" is too vague a concept to include in "the broad coalition" she says is taking part. I think Yang meant college-educated young workers in the service sector or students still in universities. They face stiff competition and have no real prospect of accumulating capital and thus feel they have nothing to lose.

The real elites — the well-to-do people in their forties and fifties — will surely have more reservations. They are connected to the state one way or another: they are more likely working for the government or a state-owned enterprise, which is expanding at the expense of the private sector. They also have kids in schools, which, in all likelihood, are state-funded.

The real danger is students combine with blue-collar workers in a replay of the Communist party's own revolution script. As we've seen in Zhengzhou where Apple factory workers have clashed with police, those with nothing to lose but their chains present government a particular challenge.

Zhao Xiaoou
Montmagny, France

Businesses benefit when older colleagues feel valued

In reference to "The Great Unretirement era is coming for Britain" (Opinion, November 26), we wholeheartedly agree that having experienced workers is a benefit to employers; the knowledge and skillset of people over 50 brings huge value to businesses. With employers gaining so much from the return of people over 50, it is their role to create age-positive environments that make experienced workers feel as valuable as they are.

People over 50 make up a third of the workforce, a number that will continue to rise. Age-positive cultures are the key to ensuring experienced colleagues are retained; this includes flexible working, a focus on wellbeing, work-life balance and a culture that encourages learning and development at all ages. In fact, Saga customers ranked "being independent" and "having self-respect" among their top three most endorsed life values.

At Saga, this is a major strategic priority — we introduced paid grandparents' leave as a key benefit this year. We have also grown the percentage of our over-50s colleagues by 15 per cent over the past 12 months.

If your prediction of the Great Unretirement comes true, more must be done to create age-positive workplaces that accommodate those from all generations.

Jane Storm
Chief People Officer, Saga Folkestone, Kent, UK

Freedom of movement: how the Swiss stuck with it

As Peter Foster ("Between the red lines — Ministers navigate a tricky path on trade as Brexit debate is rekindled", Report, November 22) states, a Swiss deal based on bilateral agreements with the EU is a non-starter.

However it should be noted that in 2020 the highly self-protective Swiss held a referendum to end an accord with the EU allowing free movement of people which they had enjoyed since 2002. In spite of vigorous campaigning by the Swiss People's party, 62 per cent backed continuing the policy, against 38 per cent opposed.

Perhaps it is time the UK had a serious debate about freedom of movement noting the balance of European Economic Area and non-EEA immigration; the needs and effects on the UK labour market; the control mechanisms available to member states and how the UK has been affected by the loss of freedom of movement in our cultural, scientific, educational, tourism and security lives.

Tony Orchard
Exeter, Devon, UK

Words more telling than those on the Brexit bus

Martin Wolf ("The UK government should stop doing stupid stuff", Opinion, November 28) makes some valid criticisms of the UK government.

As a Leaver myself, it makes no sense to simply review or revoke up to 4,000 pieces of EU-derived law — some of these laws are based on global rules that, in or out of the EU, we are obliged to follow to enable international trade. What is far more interesting is for the author to describe the 4,000 pieces as forming "the basis for much of today's national life". How truthful.

Wolf, unwittingly perhaps, makes a retrospective yet compelling case for Brexit; more so than any words on the side of a big red bus could ever make.

John M Jones
London N19, UK

Ministers would do well to recall Hezza's red tape quip

Martin Wolf correctly identifies the stupidity of the plan to "review or revoke" up to 4,000 pieces of EU-derived law (Opinion, November 28).

I believe Lord Heseltine once warned that while red tape should be cut, it should not be cut length ways.

David Wenham
Dartford, Kent, UK

Correction

● Greentown China is among Chinese property developers receiving new government credit lines, not Greenland Holdings as wrongly stated in an article on November 25.

Opinion

Brexit has made Britain a more European country

POLITICS
Janan Ganesh

There were times in the middle of the last decade when a British pound was worth €1.4. For most of the period since then, the rate has hovered around €1.1. What can you do, as a Remainer, other than salute Brexit for hitching us closer to our European brothers and sisters? The ultimate dream, that of parity, is alive yet.

What a continental country Britain has become since it left the EU. What a deceptively European project Leave is turning out to be. Under the surface tiffs — over refugees, over Northern Ireland — a convergence has been going on across the Channel. The recent trajectory of the two currencies against the dollar is the most eye-catching example, but far from the most profound.

No, that is Britain's embrace of big government. In 2028, its tax burden — its fiscal receipts as a share of national output — is projected to be five percentage points higher than in 2016. Social democrats on the continent must be blushing at this faithful emulation of their model. The tax rise hasn't just occurred *since* Brexit, but in part because of it. Having forfeited some economic growth by gumming up trade with its nearest and largest market, the UK has to tax more to fund the same level of state provision.

There is a paradox here that Leavers can chew over at their leisure. Britain was at its most liberal and "Anglo-Saxon" inside the European project. The tax burden fell as low as 28 per cent in 1994, when the nation was a member of not just any EU, but one run by Jacques Delors, whose European Commission was seen by UK tabloids as a vector for socialism. It is outside the club that Britain has felt the hand of government most. In the 1960s, the UK's tax burden was as high as Scandinavia's. Now it is going up again, and without the consolation of art as good and as caustic as the Beatles' "Taxman".

> Underneath the surface tiffs, a convergence has been going on across the Channel

There was, and is, a sound nationalist or traditionalist case for Brexit. Formal sovereignty allows Britain to subsidise domestic industries and make steep cuts in immigration. Those things have not happened, of course, in large part because they are awful ideas. But the conceptual possibility was there. The Shire reactionary, the nativist in the deindustrialised town: I regret their Leave vote, but I can't fault the internal logic of it.

What never existed was a sound liberal or free-market case for Brexit. There were not enough opportunities elsewhere in the world to make up for lost European trade. There were not enough growth-sapping EU regulations to throw aside. Politicians of a pro-market bent who voted Leave should be pressed until the end of their careers to say what on earth they thought they were doing. The prime minister is a good place to start. As mitigation for his tax rises, he is entitled to cite the cost of fiscal relief during the pandemic and the secondary effects of the war in Ukraine. At all turns, however, the question comes back: does Brexit make the problem better or worse?

Even there, with the higher taxes, the Anglo-European convergence doesn't end. For generations, one thing Britain had over much of the continent was civic order. How amusing were the many prime ministers of Italy, the many republics of France. It was not for the salons that Voltaire came to England. What the nation lacked in painting or classical music, it redressed in the higher art of politics.

Now? Britain has had five premiers in six years. (The previous five were spread across 31 years.) MPs who would have been quarantined on the backbenches a decade ago get to be home secretary. Before it is anything else, Brexit is a human resources problem. It turfed out a generation of plodding but conscientious politicians and elevated some feral ones. The result has been a hardening of the soft corruption that was always a part of the British system. Yes, sections of the media have long carried water for the Tory party. But the sycophancy under Boris Johnson would, were it to happen in a continental country, convince the same Tories that Europe is alien and irredeemable.

Bad convergence is still convergence, though. Thanks in part to Brexit, Britain is evolving a polity more like that of a young Mediterranean democracy, a tax burden more like that of a Nordic social market and a currency more like the single European one. Those of us who always wanted a continental future for Britain must not now be churls. We must give credit where it has been so strenuously earned. Boris Johnson, Rishi Sunak, Vote Leave, assorted hedgies: behold your legacy. And thank you.

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How to think about policy in a polycrisis

Martin Wolf Economics

In our interactive world, we can no longer put problems into convenient intellectual silos

Welcome to the "polycrisis" — a world in which, as Adam Tooze says, "economic and non-economic shocks" are entangled "all the way down". We have an inflation shock that emanates from the disruptions caused by a pandemic, the policy responses to that pandemic and an energy shock caused by a war. That war in turn is related to the breakdown in relations among great powers. Slow growth, rising inequality and over-reliance on credit have undermined political stability in many high-income democracies. The credit boom led to a great financial crisis whose outcome included a decade of ultra-low interest rates and so even more financial fragility worldwide. Adding to these stresses is the threat of climate change.

It is indeed convenient to think about the world in intellectual silos, focusing in turn on macroeconomics, finance, politics, social change, politics, disease and the environment, to the exclusion of the others. In a reasonably stable world, this may even work well. The alternative of thinking about the interactions among these aspects of experience is also too hard. But sometimes, as now, it becomes inescapable.

It is not just theoretically true that everything depends on everything else. It is a truth we can no longer ignore in practice. As my colleague Gillian Tett often warns, silos are perilous. We have to think systemically. Economists have to recognise how the economy is interconnected with other forces. Navigating today's storms compels us to develop a wider understanding.

This is not an argument against detailed analysis of individual elements in the picture. Economists should still look carefully at the things they know about, because they are both complex and important in themselves. Thus the data and analysis in the OECD's latest *Economic Outlook* continue to be both invaluable and illuminating. But, inevitably, they also omit vital aspects.

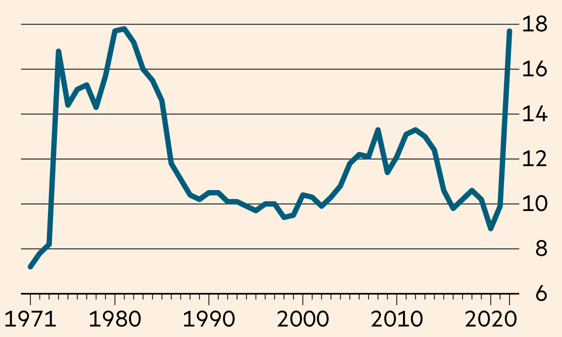
Consider, then, what the report tells us about the economic situation.

First, the energy crisis itself is truly huge. The share of OECD members' GDP spent on end-use of energy is close to 18 per cent, double what it was in 2020. In Europe, the increases must be far bigger than this. The last time the ratio was this high was in the early 1980s, during the oil shock caused by Saddam Hussein's invasion of Iran.

Second, inflation pressures are both strong and widespread. Again, this has echoes of the inflation in the early 1980s, which followed the high and variable inflation of the 1970s. Today, the energy price shock caused by the war in Ukraine followed the negative shocks to supply and positive shocks to demand triggered by Covid. This combination of supply and demand shocks with big reductions in real wages and losses of national incomes in net energy-importing countries makes the job of central banks hugely difficult.

The impact of this energy crisis is the biggest since the 1970s

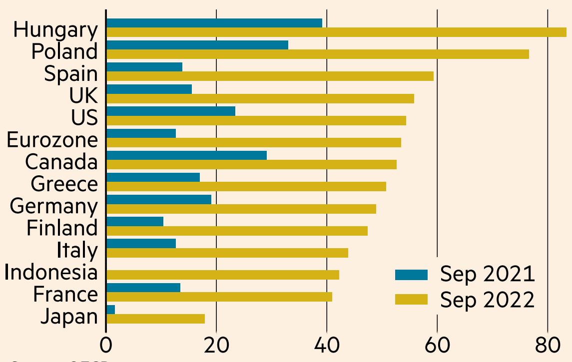
Estimated share (%) of OECD GDP spent on energy end-use



Source: OECD

Inflation has become increasingly widespread within economies

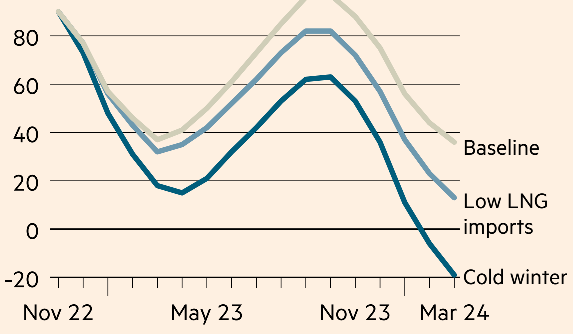
Share (%) of items in the inflation basket with price increases above 6%



Source: OECD

Gas reserves in Europe may well be lower next winter than in this one

Scenarios for gas storage levels (%) in the EU and UK until winter 2023/24



30% is the threshold for heightened risk of supply disruptions
Source: OECD

Third, there is likely to be a sharp slowdown in global economic growth between 2022 and 2023. The latter is forecast at 2.2 per cent. Moreover, the overwhelming bulk of that growth will be generated by Asian economies. The British and German economies are forecast to shrink a little, while the eurozone and US economies are forecast to grow by only 0.5 per cent.

Fourth, although this is, unsurprisingly, an unhappy picture, it could turn out far worse. The energy outlook is itself highly uncertain, with a substantial risk that gas reserves in Europe will be smaller next winter than this one, especially if winters are cold or imports of liquefied natural gas too small. Rising interest rates might trigger more financial upheaval and deeper downturns than now foreseen. Food shortages might cause deeper distress in developing countries than expected, especially in a financially restrictive environment.

> We have to act systemically. Navigating today's storms compels a wider understanding

The OECD's view, which I share, is that central banks must not take a peak in inflation as a sign their job is done. It is essential that inflation be brought firmly back under control. In this context, it is also vital that fiscal policy be targeted at supporting those worst hit by high energy prices. Just as important is a push on expanding supply of renewable energy and improving energy efficiency. That is the "home front" in Europe's conflict with Russia.

Yet even this is an incomplete picture. Other elements are the possible developments in the Ukraine war itself and what is needed to bring it to a satisfactory end. Yet another is how China will escape the trap of its zero-Covid policy. Last but not least is finding ways to help developing countries through their looming financial woes, while supporting their climate transition.

The point is that we need to analyse within the silos, while also analysing systemically across them. The OECD, to its credit, created in 2012 a unit called the New Approaches to Economic Challenges in order to do that. As this unit's most recent and apparently final report notes, we have to analyse interactions among social, economic, political, geopolitical, health and environmental developments in addressing the challenges we confront. Humanity has created a world so interdependent that no other approach is possible. Of course, such an approach is difficult. It is bound to irritate professional experts working comfortably in their silos. But ever since the financial crisis and quite particularly over the past three years, it has become clear that such narrowness is folly. It is to be precisely wrong rather than dare to be roughly right.

So what has the OECD done with this venture? Some say it is closing it. This would be a mistake. If the NAEC is not good enough, make it better. The world we know now does not divide into neat silos. Our thinking must not remain stuck narrowly within them either.

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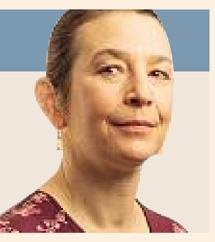
Doesn't anyone do due diligence any more?

BUSINESS
Brooke Masters



It's been a lousy month for the reputation of professional investing.

The collapse of FTX revealed that everyone from racy hedge funds to staid pension and sovereign wealth funds had been throwing money at a cryptocurrency exchange with weaker financial controls than Enron.

Elizabeth Holmes was sentenced to 11 years in prison for Theranos, a fraudulent blood-testing scheme that deceived Oracle founder Larry Ellison and media mogul Rupert Murdoch.

Shares in tech companies that went public during the 2020-21 Spac frenzy are down sharply, and many crypto firms are teetering. BlockFi declared bankruptcy on Monday despite its claim of being "backed by the best" including SoFi, Tiger Global and Peter Thiel.

Doesn't anyone do due diligence any more? The boring process of checking that potential investments can live up to their promises has fallen completely by the wayside. Due diligence once meant sending bankers to check that a mining company really had a working gold mine, hiring accountants to scour the books and asking lawyers to identify contracts that could prove troublesome in a bankruptcy.

These days, it is hard to know what due diligence actually means. Ontario Teachers' Pension Plan, which put $95mn into FTX, insists that its professionals "conduct robust due diligence on all private investments". Tiger Global, which tossed in $38mn, pays outside consultants including Bain & Co to do the work. Yet both missed what FTX's new chief has described as a "complete failure of corporate controls". Sequoia Capital, which handed FTX founder Sam Bankman-Fried $214mn even though he played video games during his pitch to them, has walked a fine line. It issued a rare apology and promised tougher standards in the future, while insisting that it did the proper checks.

> The FTX fiasco provides a reason to insist on proper audits that delve into the way firms spend their cash

Veteran Silicon Valley dealmakers say there has been a gradual erosion of standards, as venture capitalists stopped trying to select and nurture the smartest entrepreneurs and started spraying cash around. The VC model has always assumed most fledgling companies fail but investors were compensated for those losses by getting in early on a few big successes.

However, decades of easy money and a lack of decent yields from safer alternatives mean this approach has spread from early investment rounds involving a few million dollars to gigantic deals involving billions.

As more apparently successful companies stayed private for longer, investors' fear of missing out on the next Amazon or Google grew. That left them vulnerable to hucksters. Investors started picking companies based on who else was part the funding round rather than on whether the entrepreneur's business plan made sense.

The longer interest rates stayed low, the worse the problem became as institutional investors allocated more and more money to private investment funds. Flush with heaps of "dry powder", big players such as SoftBank, Tiger Global and Sequoia boasted of the speed at which they could deploy capital. That put pressure on rivals to call off their lawyers and accountants. Many agreed to invest with little or no protection for their money. Bankman-Fried refused to put investor representatives on the FTX board and used two little known auditing firms. Even when investors did insist on doing diligence, the hands-on work usually fell to the youngest lawyers, consultants and bankers. Today's 20-somethings have no meaningful downturn experience so were less experienced at judging the adequacy of controls and clauses that only matter when money starts to run out.

And run out it has. Venture capital funding in the third quarter dropped 53 per cent year on year, according to Crunchbase. With interest rates and bond yields rising, investors no longer have to take wild bets to get a decent return. Volatile markets have reminded us that the valuations don't always go up, even for winners: Google and Amazon share prices are down by more than one-third since January.

Investors who want to restore standards should start with the financials. The FTX fiasco provides a reason to insist on proper audits that delve into the way companies are spending their money and fully disclose related-party transactions. Oddities in the cash flow then give potential funders strong justification to raise governance concerns.

Some touchy founders will object, and some visionaries will struggle to meet the higher bar. But the best new companies will survive. They might even soar higher if they no longer face competition from mediocrities kept alive by prodigal investors.

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BlockFi/FTX: chain reaction

Cryptocurrency has a bright future, the digital asset lender BlockFi implied on Monday. The problem was that the company said so in a filing with a US bankruptcy court.

BlockFi was one of the crypto groups most exposed to Sam Bankman-Fried's FTX. After the trading platform went under this month, BlockFi swiftly halted withdrawals by its own clients. In a bankruptcy filing on Monday, BlockFi valiantly tried to distance itself from the same move at FTX. BlockFi argued that it could simply reorganise in weeks and come out the other side revitalised.

The company may not have been spectacularly mismanaged as FTX was. But the sheer interconnectedness of the crypto ecosystem suggests it is now inherently unstable for all participants.

According to court papers, BlockFi has up to $10bn in liabilities. These include customer accounts and settlement payments it owes the US Securities and Exchange Commission. Its complicated relationship with FTX, however, is the most interesting detail.

FTX rescued BlockFi during the first wave of crypto distress in the spring when the terra-luna stablecoin collapsed. BlockFi secured an emergency credit line of $400mn, which also gave FTX a cheap option to buy BlockFi outright.

Alameda Research, the trading arm of FTX, had borrowed nearly $700mn from BlockFi. The BlockFi cryptocurrency is currently stuck on the FTX platform. The Financial Times reported on Monday that BlockFi was suing Bankman-Fried to seize his shares of internet stockbroker Robinhood. BlockFi alleged that he had pledged them to secure borrowings.

BlockFi's sunny outlook seems unrealistic for two reasons. First, it requires courts to resolve the intertwined FTX quickly. Given the messiness of the case, that is unlikely. Second, it is not obvious that the crypto sector is healthy enough for a revamp to succeed. BlockFi survived the spring only when the then-mighty FTX arrived with a bailout.

A rough few months in crypto have felled the likes of Three Arrows Capital, Voyager Digital, Celsius Network, FTX and now BlockFi. Others must be teetering. There are tactical reasons for BlockFi and its lawyers to put on a brave face.

But there is little reason to imagine that the crypto ecosystem can become sustainable in its current form.

Italian football: bend it like Juventus

Football is great fun for star players and fans. Perhaps less so for investors in the sport. Given a flurry of high-profile deals in the sector, Juventus's troubles provide a timely reminder.

The board of the Italian football club — majority owned by Exor, the Agnelli family's listed vehicle — has quit after an investigation into its accounting for players' salaries and transfers. That, combined with financial losses, have reduced the market value to €700mn, down 35 per cent in the past year.

The probe is still at a preliminary stage. Prosecutors allege that Juventus swapped players with other clubs at inflated values, producing fat capital gains with little or no money changing hands. Juventus is also alleged to have agreed to pay players back for most of their pandemic-related salary cuts without properly accounting for this.

The club denies wrongdoing and has said it will amend accounts for 2022.

Juventus's finances look ropey even without disputed accounting. The club has lost money in each of the past five years, for a total of €612mn. It has raised €700mn of fresh equity since 2019. This reflects the vicious spending cycle that many European football clubs find themselves in.

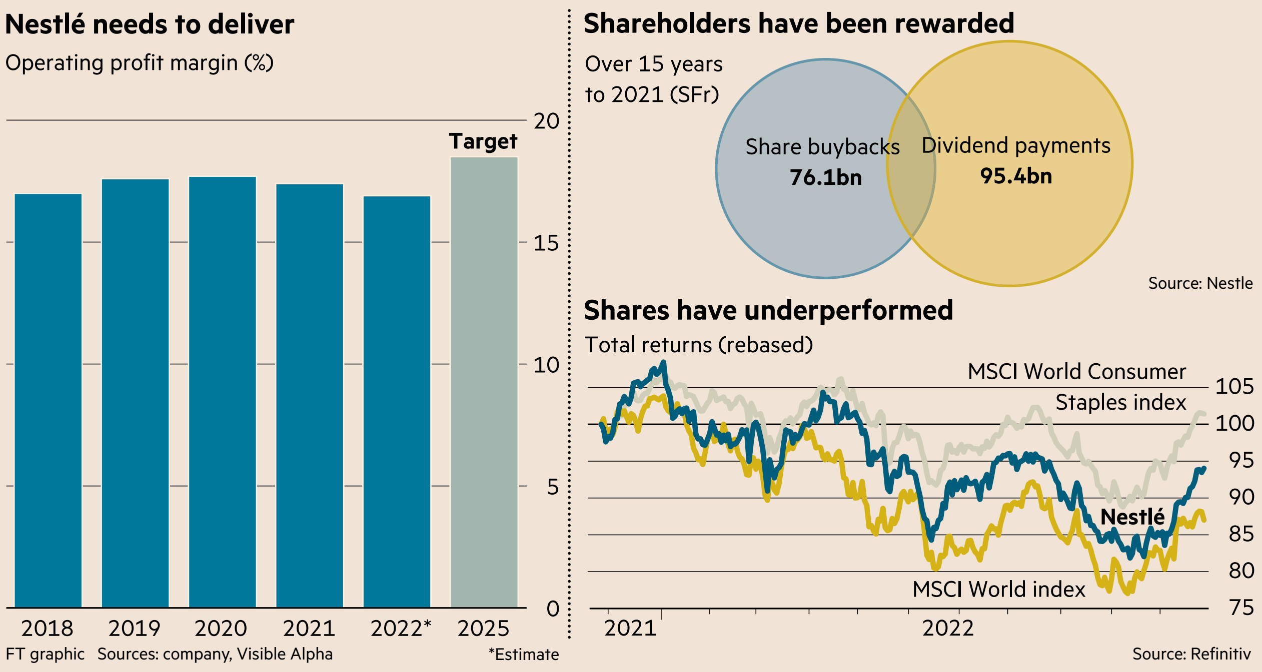
To perform well, clubs must wrest star players from wealthy rivals. Juventus, for instance, acquired Cristiano Ronaldo from Real Madrid for a transfer fee of €100mn in 2018, paying him tens of millions annually on top.

Revenues, meanwhile reflect the popularity of the team's home league. Italy's Serie A teams make less than half the revenues of the Premier League, according to Deloitte. Worse, these Italian clubs, where Deloitte reckons players take home over 80 per cent of the revenues, have collectively lost money in eight of the last 10 years.

This begs the question of whether public markets are the best home for football assets. Exor minority shareholders — saddled with an Agnelli family heirloom that looks increasingly like an albatross — might well agree.

Nestlé: swalt of the dearth

The Swiss consumer-goods group has to reverse the downtrend in profit margins in the next few years. Shareholders like the growth but must like Nestlé's generous payout record, too. This year's inflation hit to profitability has hurt Nestlé's share performance versus peers.



Sweet and salty — "swalty" — food combinations increasingly appeal to diners. Shareholders prefer sugary stuff in the form of capital gains and payouts. Nestlé chief executive Mark Schneider has therefore soured the mood with the news of the bite that inflation has taken out of the Swiss food company's profitability.

Global inflation may moderate but recessionary pressure on household budgets will not abate. Nestlé shares are likely to continue trailing the MSCI Global Consumer Staples index.

An investor day permitted Schneider to resuscitate targets for sales and for profit margins. This year, as inflation lifted the price of goods, Nestlé's organic sales growth bubbled up above its mid-single digits target. With average pricing up 7.5 per cent in the nine months to September, it now expects full-year sales growth of up to 8.5 per cent.

But steep cost-inflation could make this year's operating margin dip well below 2025's target range of 17.5-18.5 per cent. Schneider has high hopes for Nestlé's growth areas of coffee and pet food. Analysts forecast the revenues of the latter division should grow three percentage points faster than the group total of 14 per cent by 2025. Together the two businesses account for more than 40 per cent of total sales.

More importantly, Nestlé needs more free cash flow. Dividends and buybacks have exceeded free cash flow, even after asset sales, in four of the last five years to 2021. That is despite some disposals of a bottled-water business and part of a stake in cosmetics maker L'Oréal.

Schneider made clear yesterday that the company would aim for free cash flow equating to 12 per cent of sales by 2025. This year's proportion should be under a tenth, according to S&P data.

Hitting those targets when economies are slowing rapidly will present a challenge. Inflation has curbed household budgets. Many shoppers will seek options cheaper than Nestlé's fancy brands.

Pet food may be immune. But downtrading seems inevitable in other food segments and in the mature Nespresso and Starbucks-branded coffee brands.

Wise: smart money

Wise is a surprisingly straightforward proposition for a UK-listed fintech.

It is not trying to be a bank, nor is it offering a product no one knew they needed. Instead, Wise specialises in digital international money transfers. Decent half-year results show there is enough demand for this service to justify the title "disrupter" for Wise.

Correspondent banks charge a lot to move funds round the world. Wise and its peers undercut them. Developed economies are the target markets. Poor migrant workers transacting in cash in hot countries still rely heavily on unsatisfactory money agents.

Rich-world customers delivered powerful growth. Three-quarters of revenues of £397mn in the six months to the end of September came from Europe, North America and the UK. Asia-Pacific was £73mn and the rest of the world, £29mn. Add in interest revenue on customer balances of £19mn and total income was £416mn, a year-on-year rise of 63 per cent.

Wise expects total income growth for the full year of 55-60 per cent, with a compound annual growth rate of 20 per cent in the medium term. Higher-value services, such as a new debit card, will support revenue growth. The average transfer fee was 64 basis points of value, up from 62bp a year earlier.

The start-up hardly offers a cheap service, but it compares well with high-street banks charging 4 per cent or more. They still dominate the business, leaving room for growth.

Wise had 5.5mn customers in the second quarter, 40 per cent more than a year earlier. It will be harder to keep that pace of growth going amid downturns. More than two-thirds of Wise's customers followed word-of-mouth recommendations. That will help. So will diversification.

The shares trade at 65 times forward earnings. That underpins a market capitalisation of just over £6bn, pegged as fair value by Lex when the company listed just over a year ago.

Wise is hardly a value stock. But if you seek momentum, Wise has it.

RBC/HSBC: maple leaf brag

A self-deprecating Canadian colleague jokes that "worthwhile Canadian initiative" is the most soporific phrase in the English language. But there is plenty to set pulses racing in Royal Bank of Canada's acquisition of HSBC's Canadian unit.

The price of C$13.5bn ($10bn) is far above valuations from this column and from brokerage analysts. The deal is billed as a "once in a generation opportunity" by RBC. In Canada's highly-concentrated market, key banking assets rarely come up for sale.

HSBC Canada, the seventh-largest lender in the country with C$134bn of assets, is profitable. It churned out C$717mn in net income last year and boasted a 11.7 per cent return on average common equity. Regulators have resisted more consolidation in a sector dominated by only six big firms.

RBC appears confident that its own transaction, confirming its position as Canada's top bank, will pass regulatory scrutiny. It is paying the equivalent of 3 times tangible book value. Rival Canadian banks trade on a 1.6-2.5 times multiple, implying a healthy control premium. RBC expects the deal to generate annual pre-tax savings C $740mn. That would more than cover the implicit takeover premium over average values when taxed and capitalised. It would also bolster by 6 per cent the group's estimated 2024 consensus earnings per share

HSBC Canada holds just 2 per cent of the country's deposits and mortgages. Its strength is in commercial rather than main street lending. The former accounted for about half of the business's net operating income last year. RBC, with about a fifth of the country's deposits, can argue that the acquisition will not reduce retail competition significantly.

But Matthew Boswell, Canada's aggressive competition commissioner, already wants to block Rogers Communications' C$20bn takeover of Shaw Communications. Any deal enlarging the country's largest bank can expect to receive close scrutiny.

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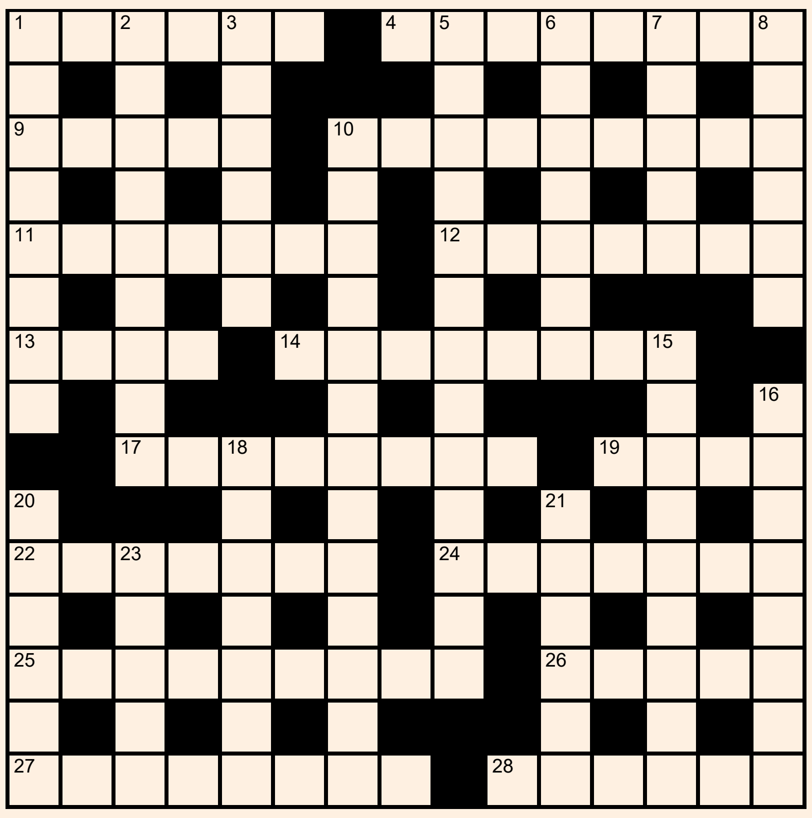

ACROSS

1 Anonymous city with a northern tail! (6)
4 Song from Venus's sister to Duke Ellington, initially (8)
9 Use it, ordering furniture (5)
10 Harmony at home about love (9)
11 Mushroom in France she dropped (7)
12 First section includes Italian suite (7)
13 Does, say, return to grass (4)
14 Musical phrase, last from radio station broadcast (8)
17 Broken hotel fan (4-4)
19 Getting support, stop working (4)
22 As well as a musical note (7)
24 Swapped notes on US drink (7)
25 Darling! Pay attention to embellishment (5,4)
26 Asleep, Ian often embraces Joanna (5)
27 Music in D sharp -- nothing unusual to young beginner (8)
28 Short month with French joiner (6)

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1 Advertise comb on holiday message (8)
2 Bite hazel nuts, girl! (9)
3 Number travelled into borders of Tipperary (6)
5 Biplane with Exocet crashed causing disapproval (13)
6 Curtain raiser Cairns out at Wedgwood's factory (7)
7 Plea which Lloyd George would have claimed? (5)
8 Group of nine seen topless and drunk (6)
10 Oh dear! Co-stars tripped over the way (6,3,4)
15 Bank service reviewed for advert (9)
16 Aunt Dot's prepared to achieve prominence (5,3)
18 Duck rejected nests underneath trees (7)
20 Old car that's set off on November 5th (6)
21 Crush on fictional lawyer who lacks love (6)
23 Male enters RADA performing this? (5)

JOTTER PAD

Solution 17,264

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The Future of Energy

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Supply chains slow renewables push

Europe risks missing climate targets as cost of components soars, writes *Justin Jacobs*

Headwinds: a Siemens Gamesa turbine plant in Hull, where rising costs have contributed to layoffs — Paul Ellis / AFP via Getty Images

Europe has put the rapid expansion of renewable power at the heart of its race to meet ambitious climate targets and — in the shorter term — to wean itself off Russian energy more quickly, after Moscow launched its assault on Ukraine.

European Union commission president Ursula von der Leyen recently emphasised the need, telling a conference that renewable energy deployment is "not only good for the climate; it is also good for our independence". She explicitly added that it was imperative to counter Russian president Vladimir Putin's use of "fossil fuels as a weapon".

But snarled supply chains and the rising cost of key raw materials are now slowing the deployment of wind and solar power across Europe, just as it is needed most — threatening the continent's ability to meet its ambitious growth targets for the renewables industry.

Henrik Andersen, president of Vestas, a major wind turbine maker, told analysts this month that "cost inflation, supply chain disruption and Covid-related lockdowns" were undermining the sector's growth, even as the energy crisis underscored "wind power's criticality to meet both the electricity demand, ensure energy supply."

Costs for key components for the wind and solar industries have risen sharply this year — part of a broader increase in commodity costs after Russia's invasion of Ukraine. For example, the price of polysilicon, a key input for solar panels, has tripled since 2021, largely because of a slowdown in production in China, where tight Covid-19 restrictions remain in place, according to the International Energy Agency.

Prices of steel and aluminium, which are also crucial for renewable power projects, are up 70 per cent and 40 per cent, respectively, says the IEA.

These surging materials prices, along with more expensive transportation and financing, have driven the costs of wind turbines and solar panels up between 10 and 20 per cent this year, according to the IEA. And that increase has brought an end to a decade-plus run of steep cost declines that had helped to drive renewable energy's rapid growth,

Now, with costs reversing, the European renewable energy industry's profitability has been undermined, prompting a wave of lay-offs just as it should be scaling up its capacity.

Siemens Gamesa, the third-largest maker of newly installed turbines last year, reported a loss of €1.2bn in the nine months ended in June, which was 233 per cent more than the loss it suffered in the same period a year earlier. It has also announced that it is slashing 2,900 jobs, or 10 per cent of its global workforce.

General Electric Renewables has also recently announced job cuts, while Vestas has warned that its revenues will be sharply lower than previously thought.

However, European policymakers have been boosting their renewable energy targets as part of a broader rethink of the region's energy security following Moscow's assault on Ukraine. As EU member states imposed economic sanctions on Russia, it subsequently slashed its flows of gas to the continent, exposing Europe's heavy reliance on Russian fossil fuels.

The EU's REPowerEU plan, rolled out in May after the Russian invasion, lifted the target for renewable energy in the power mix from 32 per cent of total electricity generation to 45 per cent, by 2030. This would necessitate a rapid acceleration of new wind and solar projects across Europe — far beyond what is currently taking place.

But, rather than accelerating, new orders for wind turbines have fallen sharply, causing WindEurope, a trade body, to raise the alarm over a potential slowdown in deployment.

It has found that new turbine orders totalled just 2 gigawatts, in terms of

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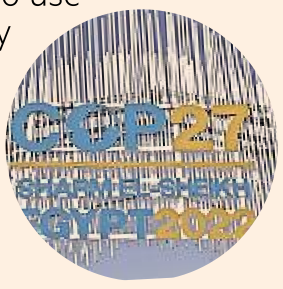

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Bridging gaps will solve intermittent delivery of wind and solar power
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The next big thing in nuclear power will be very small

Atomic energy

New modular reactors can cut costs and construction risks, says *Sylvia Pfeifer*

Big has been beautiful in the nuclear industry. For decades, the size of nuclear reactors has steadily increased, with each new plant able to generate ever greater amounts of electricity.

Britain's first commercial reactor, at Calder Hall in Cumbria, was capable of generating 50 megawatts in the 1950s; Sizewell B, the power plant in Suffolk on England's east coast that started operating in 1995, currently generates 1,200MW or 1.2 gigawatt.

But the future may be much smaller. Dozens of companies are working on a new generation of reactors that, they promise, can deliver nuclear power with less cost and risk. These smaller plants will, on average, generate between 50MW and 300MW of power, compared with the 1,000MW-plus from a conventional reactor. They will also draw on modular manufacturing techniques that reduce the construction risks encountered with larger reactors.

And nuclear power is now firmly back on the agenda, amid new fears for energy security following Russia's invasion of Ukraine and the ever-greater need to reduce global carbon emissions.

In Germany, chancellor Olaf Scholz decreed in October that all three of the country's remaining nuclear plants would continue operating until mid-April 2023. The country had been due to shut down the plants by December 31, under plans drawn up by then-chancellor Angela Merkel following Japan's Fukushima nuclear disaster of 2011. France, meanwhile, is considering ambitious plans to build new reactors.

However, with large reactor projects still facing financial and construction problems — in the UK, the new 3.2GW Hinkley Point C plant in Somerset has been hit by delays and cost overruns — analysts believe the time may be right for small modular reactors (SMRs).

Beyond the provision of baseload electricity, SMRs can be used to produce green hydrogen or a combination of heat and power in remote locations. They can also be used to power large industrial sites or data centres.

One of their biggest selling points is that they can be largely factory-built, in modules. "It tries to avoid a bunch of the problems associated with large nuclear,"

Size matters: large reactors such as Hinkley Point C cost more — Finnbarr Webster/Getty

explains Philip Meier, partner at LEK Consulting. "The flat-pack [approach] gives you predictability, [with] construction on site, which reduces the financing costs. You should also be able to march down the learning curve as they will be largely pre-designed."

Small modular reactors could also prove affordable to nations unable to fund large nuclear. Their smaller size means that there is "less demand for space and for cooling water", says Vince Zabielski, partner in the nuclear energy practice at law firm Pillsbury Winthrop Shaw Pittman. They also involve "smaller emergency planning zones compared to large traditional reactors, meaning there are far more suitable building sites for SMRs".

Government support for SMRs — most of which will not be commercial until the mid-2030s — has increased substantially in the past two years, running well into the billions of US dollars. That is 10 times more support than was available a few years ago, according to the International Energy Agency.

Some 70 designs are at different stages of development globally, the IEA reports. However, analysts warn that private capital will be essential, too, and regulatory certainty will be required to attract it. Higher costs for building the first of these new types of reactor will also be a key challenge.

"We are at a bit of a tipping point here," says Florian Funke, partner at LEK Consulting. "But it also requires a regulatory framework and government incentives for these developers to come in and develop their propositions further and get them to a commercialised level."

In the UK, the government is looking at a funding model known as the regulated asset base (RAB), which has been used for other infrastructure projects, such as Heathrow airport's Terminal 5. Under this model, consumers will contribute upfront to the cost of nuclear projects during the construction phase.

This would give developers "some certainty", says Meier. "You need to get to a point where, through the benefit of repetition, [investors have] certainty that these are an attractive, investable solution," he argues.

Progress in the west is being led by the UK, the US, Canada and France, all of which are pursuing SMRs for use in their domestic markets, as well as a new source of exports.

NuScale, an SMR developer based in the US, received approval for the design of its integrated pressurised water reactor from the US Nuclear Regulatory Commission in October.

In the UK, FTSE 100 group Rolls-Royce is leading a private consortium to build a fleet of mini reactors, each capable of generating 470MW of electricity, at operational and mothballed nuclear sites. The consortium has been aided by more than £200mn of government funding.

Another company looking to build reactors in the UK and France is start-up Newcleo. This company, which is backed by Exor, the holding company of Italy's Agnelli family, uses a "lead-cooled fast reactor" that can run on waste produced by conventional nuclear plants — so it does not require mined uranium. The company wants to build a fleet of 200MW reactors in the UK, says chief executive Stefano Buono.

Oil exploration Granting permission for more UK production is unlikely to lower prices or reverse the fields' overall decline, says *Gill Plimmer*

No return to North Sea despite new licences

In recent months, Just Stop Oil protesters have glued themselves to central London roads, blockaded entrances to petrol stations, stopped traffic on a key bridge in the UK capital, attempted to disrupt the British Grand Prix motor race, and thrown a tin of tomato soup over Vincent van Gogh's "Sunflowers" at the National Gallery.

Since being formed in April this year, the campaign against the use of fossil fuels in Britain has seen hundreds of its supporters arrested. But, far from deterring protests, the cause has been given added impetus by a UK government decision to grant a new wave of oil and gas exploration licences.

Under this programme, the North Sea Transition Authority is expected to award more than 100 permits to companies to explore for oil and gas on the Continental Shelf by the end of June. It will prioritise four areas in the southern part of the North Sea, where gas has already been discovered.

Protesters have signalled that they will mount a legal challenge. Environmental group Greenpeace claimed the new licensing round was potentially "unlawful" and indicated it would aim to block it in the courts. Climate campaigners have stressed that the UK government's attempts to secure more oil and gas from the North Sea conflicts with its commitment for the UK to have net zero carbon emissions by 2050.

The British government claims maintaining North Sea oil and gas production is justified by Russia's attack on Ukraine and denial of gas supplies to Europe, which it says underscores the need for energy independence.

But experts say it remains unlikely that any increase in oil and gas production in the North Sea would lower prices in the UK, as they are set by international markets.

Despite this, Offshore Energies UK, the industry trade body, argues that oil, gas and electricity still provide almost three-quarters of the UK's energy needs, so it is necessary to maintain domestic production to reduce reliance on imports. Last year, Britain imported 62 per cent of its gas needs and 18 per cent of its oil, according to an Offshore Energies report.

"Recent exploration activity levels in the UK Continental Shelf are lower than necessary to sustain reserves and meet UK demand," says Mark Wilson, operations director at Offshore Energies UK.

The UK still has oil and gas reserves equivalent to 15bn barrels of oil that could be exploited, the organisation says. If investment of £26bn could be secured this decade, Britain could still meet half its oil and gas demand domestically by 2030.

However, while Offshore Energies says production can be increased, even it acknowledges that, after 50 years of exploration, the North Sea is a declining

> 'If you're not sure how much oil and gas is going to be needed, you don't want to invest'

field. Output has been falling by about 5 per cent a year and the deposits that are left are generally harder to extract.

Even if fields adjoining existing sites can be harnessed for production within months, new developments can take years to come on stream, so the new licensing rounds are unlikely to reverse the long-term decline.

This has made the region less appealing to the big industry players, such as BP and Shell, which have chosen to divest themselves of North Sea assets in recent years — leaving smaller players, such as Aim-listed IOG and Neptune Energy, with the biggest appetite to increase production.

Andrew Latham, an analyst at Wood Mackenzie, says there are only "modest" opportunities in the North Sea and he doesn't see much scope for that to change. "There are occasions where there is a surprise find, but it's unlikely," he notes.

Global upstream oil and gas investment has fallen from $700bn since 2014 to $400bn a year and there is "no going back", Latham says.

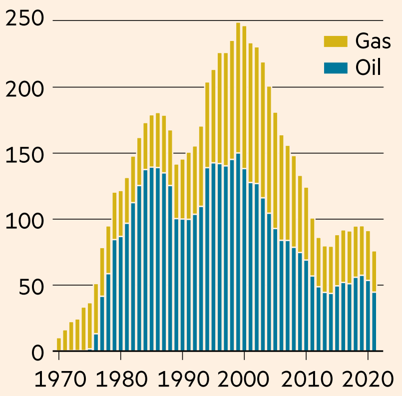
A UK windfall tax on oil and gas explorers could also deter UK investment, he says, although it has largely been offset by a generous investment tax relief, which rewards companies with an overall 91p saving for every £1 they commit.

The shift to renewables means there is less certainty about the duration of demand — and that affects the appetite from the larger oil and gas developers to pump resources into the Continental Shelf. "If you're not sure how much oil and gas is going to be needed, you don't want to invest," Latham explains. "A lot of the message is that fossil fuels aren't wanted."

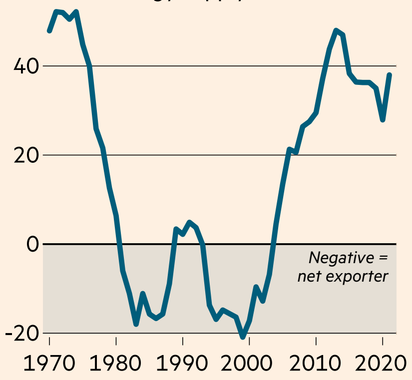
Ultimately, they are counterproductive, says Simon Retallack, director of the Carbon Trust's Net Zero Intelligence Unit. He points out that even the International Energy Agency has warned that expanding oil and gas exploration could significantly set back the transition to renewable energies,

Dwindling market: a drilling platform supply vessel in Aberdeen
Andy Buchanan/AFP via Getty

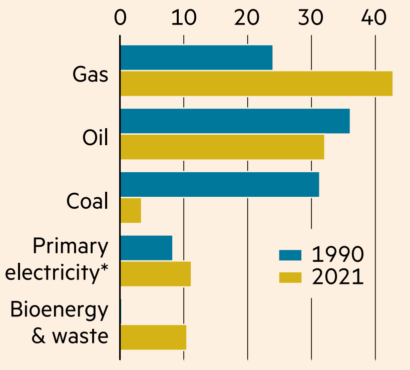
The government is seeking to maintain North Sea production
UK Continental Shelf production (mn tonnes of oil equivalent)



Reliance on imported energy has grown as North Sea output has declined
UK net import dependency (% of total energy supply)



Fossil fuels still make up more than three-quarters of the UK's energy needs
Share of UK inland energy consumption (%)



Source: Department for Business, Energy & Industrial Strategy

* mostly nuclear

threatening the UK government's net zero targets. "Prioritising renewables would deliver a cleaner, greener energy system, make the UK more resilient to global shocks in the price of oil and gas, and deliver more jobs to support UK growth," says Retallack.

But, until the UK can develop significant storage that can deal with the intermittency of wind and solar power, there will still be demand for gas and oil.

The best solution, suggests Latham, may be to cut back on the need for more fossil fuels by better insulating homes, for example, rather than targeting the supplier companies. "If you're really going to focus on reducing emissions, you need to focus on demand — so the activists' decision to protest at petrol stations and roads is interesting, as it puts pressure on everyone," he says.

Now is the time for all consumers to come to the aid of their grid

Electricity

Changing consumers' habits can help to manage demand, says *Nathalie Thomas*

This winter, millions of British households may be called upon to keep the country's lights on. National Grid — the company in charge of Britain's electricity system — has asked customers with digital "smart" meters to sign up to a service that would pay them to cut their energy use if supplies ran short.

Although it is confident that Britain can avoid blackouts, National Grid will run 12 one-hour demonstrations of this new "demand flexibility service", as well as investigating other ways for consumers to pay a bigger role in balancing electricity grids.

According to the company: "Creating more flexibility on our electricity system is vital for running a clean, green and fair system of the future."

Energy experts have long argued that the participation of households and businesses in balancing grids — by manipulating how and when they use power — can be helpful during crises and in the longer term, in meeting net zero emission goals.

Many governments have focused primarily on wind and solar electricity generation to cut emissions but experts say targets cannot be reached without changing consumption as well.

"A lot of of buzz has been made on the supply side . . . but, actually, what is missing today is a commitment from businesses and consumers on the demand side," explains Olivier Blum, executive vice-president of Schneider Electric's energy management business.

Consumers' ability to help balance electricity systems was demonstrated in California this summer, when households responded to text alerts from the US state's grid operator to reduce consumption, as record-breaking temperatures boosted demand.

Now, energy companies are hoping

Heat pumps raise electricity demand

Europe's energy crisis and events such as those in California can persuade consumers to alter their habits more permanently.

"We have been fighting for five years, ten years to convince consumers [about making such changes], we don't need to fight right now," suggests Blum.

Changing electricity consumption will become particularly important as more of the UK's 28mn homes switch from polluting gas boilers to electric heat pumps, and more drivers swap petrol or diesel cars for battery-powered vehicles.

In the UK alone, the switch to electric heat pumps is forecast to increase annual residential electricity demand by 50 per cent by 2035, according to National Grid forecasts. By 2050, demand during peak hours could double, which would require a significant increase in power generation assets and costly upgrades to electricity grids.

However, at the same time, many countries are moving away from reliable but polluting gas and coal power stations, which can quickly respond to increases in demand.

"At the moment, how we really keep the electricity system secure and balanced is through flexing gas use and paying gas generators [to fire up quickly to meet holes in demand]," says Sarah Honan, an expert in so-called flexibility services at The Association for Decentralised Energy, a trade organisation. "That's really not what the future is going to be able to look like, nor is it what we want it to look like," she says.

But the lifestyle changes involved in balancing the grid do not have to be drastic, Honan argues. National Grid has said most modern lights and televisions are so efficient that it is unlikely they will need to be turned off during its tests. Instead, it is asking participating households to consider using energy intensive appliances, such as cookers and washing machines, at different times.

Honan adds that, in the future, households with electric vehicles will be able to charge their batteries when supply is plentiful and discharge some power back to the grid when needed. Some companies, such as Ovo Energy, already offer arbitrage products that allow EV drivers to make money using their car batteries.

Some heavy industrial consumers, such as chemical works, have been doing this for some time. They are able to use companies such as the Edinburgh-based aggregator Flexitricity to sell services to National Grid to balance the system.

Not everyone is convinced about widespread adoption, though.

Energy consultant Kathryn Porter of Watt-Logic points out that only 45 per cent of UK households have the kind of digital smart meter that will allow them to participate in flexibility services.

She also argues that the incentives behind the National Grid scheme are relatively low — and some households "may simply decide it's not worth the effort".

"Clearly, as the energy transition progresses and more consumers have access to smart appliances, electric cars, and heat pumps, demand response could play a key role," Porter wrote in a blog.

But she added that the "market is not ready for this yet, with fewer than half of businesses and households being equipped with suitable meters".

New oil and gas projects Poorer nations are refusing to sacrifice natural energy assets to help rich polluters meet emissions targets, writes *Tom Wilson*

Developing countries fight for their right to fuel growth

Muhammadu Buhari: using Africa's gas reserves would lift global share of emissions half a percentage point
Dan Kitwood/AFP via Getty Images

The global fight against climate change has provoked a fierce debate over the development of new oil and gas projects in poorer nations.

Should these countries be allowed to use fossil-fuel power plants to improve their energy provision and drive economic growth, given they have contributed so little to carbon emissions historically? Or must they cut emissions as much as the long-industrialised, most polluting states?

Nowhere is this argument more vigorously contested than in Africa, where the continent's 1.4bn people are the most exposed to the effects of the climate crisis, yet 43 per cent of them — approximately 600mn — still lack access to electricity.

"Don't tell Africans they can't use their own resources," wrote Nigerian president Muhammadu Buhari ahead of the COP27 climate meeting that concluded in Egypt this month.

"We are not the problem," he said, arguing that, if Africa were to use all of its known reserves of natural gas, the continent's share of global emissions would still only rise from 3 per cent to 3.5 per cent.

And, whether by design or not, COP27's climate negotiators responded to the Nigerian leader's call.

After days of fraught negotiations, almost 200 countries agreed to set up a fund to help "vulnerable" nations suffering from climate change — but they did not reach a deal on phasing down the use of all fossil fuels, following strong opposition from some countries, including Saudi Arabia and Russia.

However, while this pledged financial support was welcomed, analysts noted that it leaves developing countries no closer to building the energy systems they will need to lift people out of poverty in a decarbonising world.

Valérie Marcel, an energy expert at Chatham House, a think-tank, says there should be room in the global carbon budget to allow poorer countries to develop fossil-fuel assets, if doing so will help provide them with much-needed energy and revenue.

She heads the New Producers Group, a project to share knowledge between 30 emerging oil and gas producers. Those emerging countries include Uganda, which aims to export oil for the first time in 2025 via a contentious pipeline being developed by France's TotalEnergies.

Marcel argues that long-term polluters have no right to tell Uganda not to sell, or use, its oil.

"For a country that is really low-income, that has significant energy gaps, that actually has a pretty high rate of renewables in its energy mix as it is . . . I think it's a bit rich to say that Uganda should keep it in the ground to leave room in the carbon budget for highly polluting industrialised countries to do what they've been doing for decades," she says.

In fact, it would make more sense, she adds, to stop oil production in countries with ageing fields — such as Russia, Algeria, Canada and the US — and allow it to start in poorer countries that have not yet benefited from their resources.

Marcel advises new producer countries to ensure that their projects have the lowest possible emissions' profile — to give them a "longer lifespan" and to prepare for a future when oil and gas production will have to cease altogether. "This is a one-time opportunity so [countries] have to be very strategic about how to use these revenues," she explains.

> 'We have this new resource. We should be figuring out how to use it, not how to maintain the old system'

But Kingsmill Bond, an energy strategist at clean energy non-profit group RMI, disagrees. He argues that any focus on developing oil and gas is a distraction that ignores the realities of the climate crisis and the opportunity presented to the global south by the energy transition.

He points out that Africa produces only 6 per cent of global fossil fuels from 4 per cent of global reserves, but has access to 39 per cent of global renewable energy potential.

The cost of generating solar power has dropped by 89 per cent in the past decade and is still falling, making it cheaper already than fossil fuel-generated electricity, according to RMI's research.

Consequently, the focus of the COP27 negotiators on preserving their countries' rights to develop oil and gas resources was a missed opportunity, Bond suggests. "We are asking the wrong question," he says. "We suddenly have this new [solar energy] resource. We should be figuring out how to use it, not how can we possibly maintain the old system, which doesn't work any more."

He sees better financing as a way to do that. Development banks currently lend $25bn a year to middle and low-income countries, and help to mobilise a further $10bn in private finance.

Increasing that to $140bn a year in lending is feasible by 2030, which could, in turn, mobilise a further $270bn in private funding, according to RMI.

"Development banks need to be taking more risks," Bond says. "There needs to be a great bargain between people on the ground, who want energy, and people from wealthy countries, who may be able to provide capital."

Long-term storage remains bottleneck in harnessing potential of wind and solar

Excess energy

New technologies to keep power on tap are emerging fast but market is still nascent, writes *Shotaro Tani*

Battery charge: a lithium mine in Chile's Atacama Desert — John Moore/Getty Images

As the world transitions from fossil fuels to renewables, a fundamental question remains: where do we get our energy when the wind is not blowing and the sun is not shining?

One solution is to store excess energy when the sun *is* shining and the wind *is* blowing — then discharge it when necessary. Large lithium ion rechargeable batteries are already being used to store energy to some extent, but "currently, battery technology only has a capacity of covering up to four hours", notes Carlos Torres Diaz, director of power and gas market research at consultancy Rystad Energy.

While that is likely to improve in the coming years, "there will still be periods where batteries will not be enough, so you need something else to back up the energy system", Diaz says. "This is when long-term energy storage becomes crucial."

Long duration energy storage (LDES) generally refers to any form of technology that can store energy for multiple hours, days, even weeks or months, and then provide that energy when and if needed. It is a technology that is essential if the world is to increase the proportion of renewable energy, given it is an inherently intermittent source.

The Long Duration Energy Storage Council, launched last year at COP26, reckons that, by 2040, LDES capacity needs to increase to between eight and 15 times its current level — taking it to 1.5-2.5 terawatts (85-140 terawatt hours) — to enable a cost-optimal net zero energy system.

Various technologies are being worked on, with varying degrees of maturity, but the benchmark is pumped hydro storage, partly because of its high round-trip efficiency: the proportion of the energy stored in this way that can later be pulled out is around 80 per cent.

It is technology that has been around for more than a century, involving the movement of water between lower and higher reservoirs to store and generate energy. However, it remains the most used storage method globally, with around 160GW of power capacity installed as of last year. A further 130GW is planned or under construction, with China accounting for around 60 per cent of the new plans.

Although geographical constraints are a limitation on the use of the technology, especially in the case of overground large-scale facilities, new developments are emerging that can allow for its deployment on non-mountainous terrain.

A similar method to pumped hydro, but involving the movement of a solid mass between different heights, is also being developed by the Swiss-based company Energy Vault. This uses excess renewable power to lift and stack composite blocks that are later released to generate electricity. A 5MW capacity proof-of-concept facility in Switzerland, built in 2020, achieved 75 per cent round-trip efficiency, Energy Vault says, and it has announced plans to deploy the technology in China.

> 'The business case for better battery storage attached to a solar system is relatively straightforward'

Other similar technologies include the use of excess energy to compress and store air, then release it to turn generator turbines.

Alternatively, there are electrochemical technologies, such as vanadium flow batteries. These use large tanks of separately charged vanadium electrolytes to store energy, but generally have a lower round-trip efficiency compared with other options, at present.

And there are new battery types. Norway-based Energy Nest is storing excess energy as heat in concrete-like "thermal batteries" for use in industrial processes. Heat for heavy industry is more typically generated by burning natural gas.

"Fifty per cent of global energy consumption is not in the form of electricity — it's based on heat," points out Christian Thiel, Energy Nest's chief executive. "[If you] focus on electrons, you are not looking at that whole energy pie."

Investment in LDES has picked up noticeably in recent years. It totalled $910mn in 2021, a jump from $130mn in 2018, according to the LDES Council, although it reckons a cumulative $1.5tn-$3tn worth of investment between 2022 and 2040 will be needed to develop the sector further.

But it remains a nascent market without an established business model — and, already, one LDES project has been cancelled. In May, Siemens Gamesa, the renewable energy arm of multinational conglomerate Siemens, discontinued its demonstration of electrothermal energy storage in Hamburg, Germany.

"A commercial market for large-scale and long-term storage has not emerged to date," a company spokesperson says. "The penetration of renewable energy in the system has not reached the extent to bring to life a market for long duration storage technologies, and the regulatory framework has, further, not been supportive regarding market entry."

Frank Wouters, co-president of the LDES Council, says both regulators and industry players are still trying to figure out what the right business model is.

"The business case for having better battery storage [attached] to a solar system is now something that is relatively straightforward," he says. "It's commercial — you can make a business case out of that." But Wouters notes it is not always clear where LDES is the optimal solution. "It really depends on the local situation," he says.

LDES will be "competitive in some situations, not others", agrees George Hilton, senior analyst at S&P Global Commodity Insights.

He suggests LDES may be beneficial in places that are looking to decarbonise but lack an interconnected energy grid, such as the Pacific Islands, or "in poorly interconnected areas . . . where they are relying on diesel or gas generation at the moment because it's not feasible to build the grid to those locations". He adds: "Those places will go down the LDES route early, and we'll get signs as to how the rest of the market is going to shape up."

Supply chains slow push into renewables

Continued from page 1

their capacity, in the third quarter this year — which is down 36 per cent compared with the same quarter the previous year.

According to WindEurope's data analysis, the two full quarters since Moscow launched its assault on Ukraine in February have been the slowest for new turbine orders since 2017.

Total orders this year have accounted for just 7.7GW of power, far short of the 39GW of new wind capacity needed each year to hit the EU's 2030 target of 510GW. WindEurope said this was "far off from what Europe needs to reach its energy and climate targets".

In addition to causing growth targets to be missed, the supply chain and financial problems have also prompted concerns that Europe's renewable's industry could grow overly reliant on Chinese manufacturers and suppliers — mirroring the reliance on Russian fossil fuels that the continent is trying to break.

An IEA report over the summer found that the world relied on China for more than 80 per cent of the supplies needed for solar panels, and warned that, for some components, the reliance could rise to 95 per cent by 2025.

Siemens Gamesa chief executive Jochen Eikholt has said that Europe's wind industry could end up in the same place and has called on more government support for the sector, including a quota for European-made supplies.

Last year, Chinese manufacturers accounted for 53.5 per cent of new global turbine installations, according to the Global Wind Energy Council, up from 36.6 per cent in 2018. Eickholt believes there is now "definitely a risk" that the wind turbine industry could come to look like the solar panel industry, where Chinese manufacturers dominate the market and the supply chain.

Rystad Energy, a consultancy, has suggested that surging electricity costs brought about by the war in Ukraine could heighten that risk of relying on China — further undermining European efforts to build a homegrown clean energy supply chain.

"High power prices not only pose a significant threat to European decarbonisation efforts but could also result in increased reliance on overseas manufacturing," Audun Martinsen, Rystad's head of energy service research, warned recently.

"Building a reliable domestic low-carbon supply chain is essential if the continent is going to stick to its goals . . . but, as things stand, that is in serious jeopardy," he added.

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THE TIME FOR ACTION IS NOW

The climate crisis is having a devastating effect on the world.

Increased poverty. Hunger. Extreme weather. As we go to COP27, the damage intensifies every day, compounded by multiple other emergencies facing the globe—from soaring inflation to energy insecurity to war.

Developing countries are paying the heaviest price.

The world must do more.

At COP27, all countries need to act. And those most responsible for greenhouse gas emissions should act first, leading by example by accelerating their own decarbonization efforts and providing more resources for climate action.

We are rising to the challenge ourselves and with partners, expanding global efforts through financing, expertise, and analysis. Tackling climate and development challenges together is key to our Climate Change Action Plan. We have doubled our climate finance in the last five years. Last year, the World Bank Group financed a record $31.7 billion in climate-related investments, more than any other international institution, including $13.5 billion in the world's poorest countries. Nearly half of World Bank climate finance supported adaptation and resilience to help communities already affected by climate change deal with its impacts. Our new Country Climate and Development Reports provide actionable, priority recommendations for decision makers to reduce emissions and help communities adapt. We are also leading a fast mitigation sprint to reduce methane emissions for immediate impact.

Now is the time for action. The future depends on it. Let's all do more. Join us.